



ASSOCIATE DEGREE AND CERTIFICATE PROGRAMS AT SANTIAGO CANYON COLLEGE (SCC)

AA = Associate of Arts Degree AS = Associate of Science Degree CA = Certificate of Achievement
 AA-T = Associate in Arts for Transfer Degree AS-T = Associate in Science Degree for Transfer CP = Certificate of Proficiency

Degrees and certificates of achievement have State-approved program control numbers and appear on student transcripts.
 Certificates of proficiency are not State-approved and do not appear on student transcripts..

PROGRAM	AWARDS	PROGRAM	AWARDS
* Accounting	AS CA/CP	* Gemology	AS CA
* American Sign Language (Formerly Sign Language)	CA	General Education (CSU)	CA
Anthropology	AA/AA-T	General Education (IGETC)	CA
* Apprenticeship–Carpentry	AS CA	Geography	AA-T
* Apprenticeship–Cosmetology	CA	Geology	AS-T
* Apprenticeship–Electricity	AS CA	History	AA-T
* Apprenticeship–Maintenance Mechanic	AS CA	Kinesiology	AA-T
* Apprenticeship–Operating Engineers	AS CA	Liberal Arts	AA/AS
* Apprenticeship–Power Lineman	AS CA	* Management	AS CP
* Apprenticeship–Surveying	AS CA	* Marketing	AS CP
* Art	AA/AS/AA-T CA	Mathematics	AS-T
Astronomy	AS	Modern (Foreign) Languages	AA
* Biology	AS CA/CP	Philosophy	AA/AA-T
* Business	AS/AS-T CA/CP	Physics	AS-T
Chemistry	AS-T	Political Science	AA-T
* Child Development (Formerly Human Development)	CP	Psychology	AA-T
Communication	AA/AA-T	* Public Works	AS CA/CP
* Computer Information Systems	AS CA	* Real Estate	AS CA/CP
* Computer Science	AS/AS-T CA/CP	Science	AS
* Cosmetology	AS CA/CP	Social Science	AA
Earth Sciences	AS	Sociology	AA/AA-T
Economics	AA/AA-T	Spanish	AA-T
* Education	AA/AA-T CP	* Survey/Mapping Sciences	AS CA
* Electrician	AS CA	* Television / Video Communications	CP
English	AA/AA-T	* Water Utility Science	AS CA
		Women’s Studies	AA

* Career Technical Education (CTE) training opportunities

For information regarding Gainful Employment and our programs, please visit our website at www.sccollege.edu/gainfulemployment



SCC ACADEMIC PROGRAMS

Departments are listed alphabetically as identified with a program heading. Faculty contact, program information, awards and courses are listed under each program.

ASSOCIATE DEGREES AND CERTIFICATES

Santiago Canyon College offers a variety of traditional degrees and certificates. Associate degrees are programs of study within a specific major and require general education. Certificates of achievement are programs of study in a particular academic or occupational area and exclude general education. All degrees and certificates of achievement have a State-approved program control number in parentheses which will appear on student transcripts. Certificates of proficiency are specialized vocational areas, excluding general education, which do not appear on student transcripts.

Programs which lead to transfer to universities and four-year colleges do not necessarily reflect the transfer requirements of specific schools. In planning a program for transfer, it should be noted that the transfer requirements for both the major and general education vary widely. Hence it is recommended that the student review the catalog of the school of transfer and consult with the counseling staff at Santiago Canyon College in planning transfer objectives.

ASSOCIATE DEGREES FOR TRANSFER

California Community Colleges are now offering associate degrees for transfer to the CSU. These may include Associate in Arts (AA-T) or Associate in Science (AS-T) degrees. These degrees are designed to provide a clear pathway to a CSU major and baccalaureate degree. California Community College students who are awarded an AA-T or AS-T degree are guaranteed admission with junior standing somewhere in the CSU system and given priority admission consideration to their local CSU campus or to a program that is deemed similar to their community college major. This priority does not guarantee admission to specific majors or campuses.

Students who have been awarded an AA-T or AS-T are able to complete their remaining requirements for the 120-unit baccalaureate degree within 60 semester or 90 quarter units.

To view the most current list of Santiago Canyon College's Associate Degrees for Transfer and to find out which CSU campuses accept each degree, please go to www.sccollege.edu/transferdegrees.

Current and prospective community college students are encouraged to meet with a counselor to review their options for transfer and to develop an educational plan that best meets their goals and needs.

COURSE DESCRIPTIONS

Course descriptions include the course discipline, number, title, units, class hours, requisites, and any applicable additional information such as cross-listings, C-ID, field trips, material fees, open-entry/open-exit, pass/no pass, repeatability, transferability, and credit by exam.

Course Number

100-299: Courses numbered 100-299 are transferable to California State University (CSU) or University of California (UC) and are applicable to the associate degree. See Transferability of Courses on page 40 for additional information.

Honors: Courses numbered 100 and above followed by the letter "H" are offered as part of the Santiago Canyon College Honors Program. See Honors Program and Honors Courses on pages 27-28.

001-099: Courses numbered 001-099 are not transferable to California State University (CSU) or University of California (UC). They are applicable to the associate degree unless the course number is preceded by the letter "N".

N01-N99: Courses numbered N01-N99 are not transferable to California State University (CSU) or University of California (UC) and are not applicable to the associate degree. These courses count toward course load.

California State University (CSU) or University of California (CSU/ UC): Identifies courses that are transferable to California State University (CSU) or University of California (UC). A credit limitation may exist for some courses that transfer to UC. See page 40 for additional information.

Course Identification Numbering System (C-ID): Identifies a lower-division, transferable course commonly articulated between California Community Colleges and four-year universities. See page 46 for additional information.

Credit by Exam: See Credit by Examination on pages 17-18.

Experimental Courses: See Experimental Courses on page 18.

Grade Pass/No Pass: See Pass/No Pass on page 21.

Prerequisites, Corequisites and Recommended Preparation: See section on pages 21-22.

Repeatable Courses: See Course Repeatability and Repetition pages 16-17.

Same as: Identifies an identical course in a different discipline.



SCC ACADEMIC PROGRAMS

ACCOUNTING (ACCT)

Division of Business and Career Technical Education

Dean: Von Lawson

Co-Chairs, Business: Steven Deeley, Stewart Myers

Faculty: DeAnna Kirchen, Melissa Shirah

The Associate of Science degree and Certificate of Achievement in Accounting prepare students for entry-level positions and promotional opportunities in accounting and administrative departments of businesses in public and private sector areas such as manufacturing, merchandising, financial service, wholesale trades, and government. Specialized training in accounting and finance principles and practices enable students to maintain accounting records and develop financial reports and make effective use of financial information for analysis and decision making. Entry-level employment opportunities include positions in accounts receivable/payable, payroll, income tax preparation, cost accounting, and a number of trainee positions. Promotional opportunities include higher-level responsibilities in these areas and the areas of general ledger, financial statement preparation and financial statement analysis.

Associate of Science Accounting (11858)

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Be prepared for a job or transfer to a four-year institution.

Major requirements*	Units
Accounting 101, Financial Accounting	4
Accounting 102, Managerial Accounting	4
Accounting 204, Managerial Cost Accounting	3
OR	
Accounting 205, Intermediate Accounting I	3
Business 222, Business Writing	
OR	
Management 122, Business Communications	3
Computer Information Systems 101, Introduction to Microsoft Office	3
Computer Information Systems 106, Microsoft Excel	3
TOTAL	20

Certificate of Achievement Accounting (21631)

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Be eligible to apply for a job in accounting.

Certificate requirements	Units
Accounting 101, Financial Accounting	4
Accounting 102, Managerial Accounting	4
Accounting 204, Managerial Cost Accounting	3
OR	
Accounting 205, Intermediate Accounting I	3
Business 222, Business Writing	
OR	
Management 122, Business Communications	3
Computer Information Systems 101, Introduction to Microsoft Office	3
Computer Information Systems 106, Microsoft Excel	3
TOTAL	20

Students intending to obtain a bachelor's degree in accounting are advised to meet with a Santiago Canyon College (SCC) counselor, and to also look at the Business Administration requirements listed in the catalog of the transfer university of their choice. Students planning to transfer to California State University, Fullerton (CSUF) should strongly consider taking Business 222, Business Writing, to meet the communication requirement above and taking Business 150, Introduction to Information Systems and Applications to meet the associate degree requirements for computer skills and knowledge.

Certificate of Proficiency General Accounting

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Be eligible for an entry-level job in accounting.

Certificate requirements	Units
Accounting 101, Financial Accounting	4
Accounting 102, Managerial Accounting	4
Business 150, Introduction to Information Systems and Applications	3
OR	
Computer Information Systems 101, Introduction to Microsoft Office	3
Business 222, Business Writing	
OR	
Management 122, Business Communications	3
TOTAL	14

Certificate of Proficiency Computerized Accounting

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Be eligible for employment as a bookkeeper, accounting clerk, or other comparable jobs.

Certificate requirements	Units
Accounting 035, QuickBooks	2
Accounting 101, Financial Accounting	4
Computer Information Systems 101, Introduction to Microsoft Office	3
OR	
Computer Science 100, The Computer and Society	3
Computer Information Systems 106, Microsoft Excel	3
TOTAL	12

Courses

Accounting 035

QuickBooks

Unit(s): 2.0

Class Hours: 32 Lecture total.

Preparation of accounting records for businesses using the QuickBooks software in the Windows environment. Topics include customer transactions, vendor transactions, bank reconciliations, reports, company file setup, and customization of QuickBooks.

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Accounting 101 Financial Accounting

Unit(s): 4.0

Class Hours: 64 Lecture total.

The study of accounting as an information system, examining why it is important, and how it is used by investors and creditors to make decisions. Coverage includes the accounting information system and the recording and reporting of business transactions with a focus on the accounting cycle, the application of generally accepted accounting principles, the classified financial statements, and statement analysis. It also includes issues relating to asset, liability, and equity valuation, revenue and expense recognition, cash flow, internal controls and ethics. **CSU/UC (C-ID)**

Accounting 102 Managerial Accounting

Unit(s): 4.0

Class Hours: 64 Lecture total.

Prerequisite: Accounting 101.

Study of the use and reporting of accounting data for managerial planning, cost control, and decision-making purposes. The course includes broad coverage of concepts, classifications, and behaviors of costs. Topics include cost systems, the analysis and use of cost information, cost-volume-profit analysis, contribution margin, profit planning, standard costs, relevant costs, and capital budgeting. **CSU/UC (C-ID)**

Accounting 204 Managerial Cost Accounting

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: Accounting 102.

Presents the theory of cost behavior, cost accounting, and cost control; the use of accounting information for management planning and decision making; cost systems, budgeting, and financial performance analysis. **CSU**

Accounting 205 Intermediate Accounting I (Formerly: Accounting 205, Intermediate Accounting)

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: Accounting 102.

An intermediate study of accounting theory and the conceptual framework; preparation of income statements and comprehensive income, balance sheets and statements of cash flows. Coverage includes present value and accounting concepts related to the asset side of the balance sheet. **CSU**

AMERICAN COLLEGE ENGLISH (ACE)

Division of Arts, Humanities and Social Sciences

Dean: Marilyn Flores

Department Chair, ACE: Diana Babayan

Faculty: Diana Babayan

Courses

American College English N80 Writing Review

Unit(s): 0.5

Class Hours: 8 Lecture total.

Recommended Preparation: Concurrent enrollment in another American College English course is highly recommended.

This course offers individualized practice in creating better paragraphs and short essays emphasizing correct grammar, spelling and punctuation. Students can work on computers in the Academic Success Center and will conference with their instructor regularly. Grade: Pass/No Pass.

American College English N81 Improving Pronunciation

Unit(s): 3.0

Class Hours: 48 Lecture total.

Students will improve pronunciation of vowel and consonant sounds, word stress and intonation. Students will also practice reduced forms and thought groups. Some assignments require students to use the Academic Success Center outside of class hours.

American College English 052 Expanding Academic Writing and Reading

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Prerequisite: Qualifying placement profile.

Recommended Preparation: Concurrent enrollment in American College English 053 is strongly advised.

Intermediate students expand their skills in grammar and in writing paragraphs. This course also strengthens students' vocabulary, reading and critical thinking skills. Laboratory is required and includes class assignments, individualized work and writing conferences with the instructor. Lab is part of the scheduled class meeting hours. Some homework will require the use of the Academic Success Center.

American College English 053 Expanding Academic Speaking Skills

Unit(s): 2.0

Class Hours: 32 Lecture total.

Intermediate level students expand their speaking skills in English. They will practice different types of speaking tasks such as expressing and supporting opinions, restating what others have said, and paraphrasing what they have heard or read. This course also strengthens students' vocabulary and critical thinking skills. Some assignments in the Academic Success Center will be required.

American College English 093 Refining Academic Speaking Skills

Unit(s): 2.0

Class Hours: 32 Lecture total.

Recommended Preparation: Concurrent enrollment in American College English 102.

High-intermediate speaking and listening skills course. Students will increase their ability to understand and summarize longer lectures, engage in group discussions and do effective presentations. Lab may be required for some assignments.



**American College English 102
Refining Academic Writing and Reading**

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Prerequisite: American College English 052 or qualifying placement profile.

Recommended Preparation: Concurrent enrollment in American College English 093.

Students receive intensive practice with strategies to improve their writing skills at the paragraph and short essay level. They also expand their grammar, vocabulary, reading and critical thinking skills. Laboratory is required and includes class assignments, individualized work and writing conferences with the instructor. Lab is part of the scheduled class meeting hours. **CSU/UC**

**American College English 116
Introduction to Academic Composition**

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Prerequisite: American College English 102 or qualifying placement profile.

Advanced students are introduced to common academic writing tasks such as comparing/contrasting and supporting an argument. Students also produce a short research paper. The course emphasizes control of grammar, punctuation and mechanics within student papers. Students will also strengthen critical reading and vocabulary skills. Laboratory is required and includes class assignments, individualized work and writing conferences with the instructor. Lab is part of the scheduled class meeting hours. **CSU/UC**

AMERICAN COLLEGE ENGLISH PROGRAM (ACE/ESL)

The ACE program is for students who have an English as a Second Language (ESL) background or who had English Language Learner/Development (ELL or ELD) classes in high school.

ACE courses are intensive and emphasize writing, reading and speaking skills development to prepare you for success in all of your college-level courses.

Before you can register for ACE, you need to take the TELD placement test. ESL students who take the other English placement test (CTEP) are often placed in

English N50 or N60 and might not pass because they lack the necessary fluency in writing. To register for the TELD, go to <http://www.sccollege.edu/Departments/testing>.

NOTE: The TELD can place very advanced ESL students into English 101.

The following chart shows the levels in the ACE program. Students who place below ACE 052 can take classes in SCC's Continuing Education ESL program, which can be contacted at (714) 628-5900. Not all ACE courses are offered every semester.

ACE COURSE	PREREQUISITE	+ SUPPORT COURSES and Continuing Education
ACE 052 , Writing/Reading 4 units, 6 hours/week	Placement test profile	Reading 096 (3 units) ACE N81, Pronunciation (3 units)
ACE 053 , Speaking/Listening 2 units, 2 hours/week	ACE 052 students are strongly advised to also enroll in ACE 053.	Continuing Education ESL 480 Continuing Education ESL 580
ACE 102* , Writing/Reading 4 units, 6 hours/week	Placement test profile OR "C" or above in ACE 052.	Reading 096 or 097 (3 units) ACE N81, Pronunciation (3 units)
ACE 093 , Speaking/Listening 2 units, 2 hours/week	ACE 102 students are strongly advised to enroll in ACE 093.	Continuing Education ESL 580 Continuing Education ESL 601
ACE 116* , Intro to Composition 4 units, 6 hours/week	Placement test profile OR "C" or above in ACE 102.	Reading 097 or 102 (3 units) ACE N81, Pronunciation (3 units)
<i>Students who pass ACE 116 can take English 101.</i>		Counseling 101 (3 units) Counseling 116 (3 units)

***ACE 102 AND 116 TRANSFER TO CSU AND UC; English N50, N60 and 061 do not.**

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



AMERICAN SIGN LANGUAGE (SIGN)

Division of Arts, Humanities and Social Sciences

Dean: Marilyn Flores

Department Chair, Modern Languages: Elizabeth Baez

Faculty: Charlie Malone

Certificate of Achievement

American Sign Language (11905)

The Certificate of Achievement in American Sign Language (ASL) is offered as preparation for developing linguistic competency in ASL and readiness for entering a formal interpreter training program. The certificate indicates skill in the use of ASL for personal communication and an introductory awareness of Sign Language interpreting and other professions working within the Deaf community.

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Maintain an ongoing dialogue in ASL at an intermediate conversational level.

Certificate requirements

	Units
American Sign Language 110, American Sign Language I	4
American Sign Language 111, American Sign Language II	4
American Sign Language 113, Introduction to Interpreting for the Deaf	3
American Sign Language 114, Classifiers, Fingerspelling and Numbering	3
American Sign Language 116, Introduction to Deaf Studies	3
American Sign Language 210, American Sign Language III	4
Select one (1) course from the following:	3
Child Development 107, Child Growth and Development (DS1) (3)	
Child Development 205, Introduction to Children with Special Needs (3)	
Communication 100/100H, Introduction to Interpersonal Communication (3)	
Communication 120/120H, Introduction to Intercultural Communication (3)	
Education 209, Roles and Responsibilities of the Special Education Paraprofessional (3)	
Psychology 157, Introduction to Child Psychology (3)	
Theatre Arts 110, Acting Fundamentals (3)	
TOTAL	24

Courses

American Sign Language 110

American Sign Language I

(Formerly: Sign Language 110, American Sign Language I)

Unit(s): 4.0

Class Hours: 64 Lecture total, 16 Laboratory total.

This entry-level course is designed to introduce students to American Sign Language (ASL) and fingerspelling as it is used within American Deaf culture. Instruction includes preparation for visual/gestural communication followed by intensive work on comprehension through receptive language skills, development of basic conversational skills, modeling of grammatical structures, and general information about American Deaf culture. American Sign Language 110 is equivalent to two years of high school ASL. Students are required to attend at least one off-campus event. **CSU/UC**

American Sign Language 111

American Sign Language II

(Formerly: Sign Language 111, American Sign Language II)

Unit(s): 4.0

Class Hours: 64 Lecture total, 16 Laboratory total.

Prerequisite: American Sign Language 110.

The second course in the study of American Sign Language (ASL) focuses on increased vocabulary development, intermediate comprehension and conversational skills, application of grammatical structures and practice in the receptive and expressive language aspects of ASL, as well as appreciation of American Deaf culture and history. Students are required to attend at least two off-campus events. **CSU/UC**

American Sign Language 113

Introduction to Interpreting for the Deaf

(Formerly: Sign Language 113, Introduction to Interpreting for the Deaf)

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: American Sign Language 210.

The study of the history of sign language interpreting and the theoretical foundations and technical skills needed to interpret in professional settings for deaf and hard of hearing children and adults. The roles, responsibilities, and ethics of interpreters providing interpreting services in various professional settings will be examined. Students will be required to attend two off-campus events. **CSU**

American Sign Language 114

Classifiers, Fingerspelling, and Numbering

(Formerly: Sign Language 114, Classifiers, Fingerspelling, and Numbering)

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: American Sign Language 111.

This course is designed to provide specialized instruction in the development of advanced skills and application of expanded conceptualization of American Sign Language (ASL) classifiers, fingerspelling, and numbering concepts. Expressive and receptive techniques will be emphasized. **CSU**

American Sign Language 116

Introduction to Deaf Studies

(Formerly: Sign Language 116, Perspectives on Deafness)

Unit(s): 3.0

Class Hours: 48 Lecture total.

This is an introductory course exploring the cultural, educational, linguistic and audiological experiences of people who are deaf, hard of hearing, deaf/blind and late-deafened in America. Students will be exposed to historical and current perspectives in trends, philosophies, ideologies, and the Deaf community as a subculture of American society. Students are required to attend at least one off-campus event. **CSU/UC**

American Sign Language 210

American Sign Language III

(Formerly: Sign Language 112, American Sign Language III)

Unit(s): 4.0

Class Hours: 64 Lecture total, 16 Laboratory total.

Prerequisite: American Sign Language 111.

The third course in the study of American Sign Language (ASL) emphasizes advanced ASL syntax, non-manual markers, vocabulary, and fingerspelling enabling students to participate in more complex conversations with Deaf community members. The course also emphasizes expressive skills in narrative form. Students are required to attend three off-campus events. **CSU/UC**



ANTHROPOLOGY (ANTH)

Division of Arts, Humanities and Social Sciences

Dean: Marilyn Flores

Department Co-Chairs, Anthropology: Vanessa Engstrom, Alexander Taber

Faculty: Allison Tripp

Associate in Arts

Anthropology for Transfer (32043)

The Associate in Arts in Anthropology for Transfer degree is designed to provide students with an understanding of the scientific and humanistic study of past and present cultures, nonhuman primate relatives and archaeology. Courses in this program explore the influence of anthropology on various professional areas such as archeology, ethnography, linguistics, physical anthropology, museology, elementary and secondary social science education, art, economics, history, international relations, music, law, political science, psychology, religion, social work and foreign service. Successful completion of the transfer degree in Anthropology guarantees the student acceptance to the California State University system to pursue a baccalaureate degree in Anthropology or a related field.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Explain cultures past and present and how cultures fit into modern globalization.
- Discuss hominidae biological development over millennium and their social and biological attributes.
- Understand and explain culture in Archaeological terms and try to interpret artifacts into economic, religious, political and social context.

Major requirements*

	Units
Anthropology 100/100H, Introduction to Cultural Anthropology	3
Anthropology 101, Introduction to Physical Anthropology	3
Anthropology 103, Introduction to Archaeology	3
Select one (1) course from the following (List A):	3
Anthropology 104, Language and Culture (3)	
Geography 102, Cultural Geography (3)	
Earth Sciences 100, Physical Geology (3)	
Select one (1) course from the following (List B):	3-4
An additional course from List A (3)	
(may not be a course used to satisfy the requirements in List A)	
Mathematics 219/219H, Statistics and Probability (4) OR	
Social Science 219/219H, Statistics and Probability (4)	
Select one (1) course from the following (List C):	3
An additional course from Lists A or B (3-4)	
(may not be a course used to satisfy the requirements in List A or B)	
Chicano Studies 101, Introduction to Chicano Studies (3)	
Communication 225/225H, Gender Communication (3)	
English 271, Survey of World Literature I (3)	
English 272, Survey of World Literature II (3)	
Ethnic Studies 101, Introduction to Ethnic Studies (3)	
Geography 100/100H, World Regional Geography (3)	
History 101/101H, World Civilizations to the 16th Century (3)	
History 102/102H, World Civilizations Since the 16th Century (3)	
Music 102, World Music (3)	
History 124, Mexican-American History in the United States (3)	
Philosophy 112, World Religions (3)	
Psychology 170, Multicultural Psychology (3)	
Sociology 100/100H, Introduction to Sociology (3)	
Women's Studies 101, Introduction to Women's Studies (3)	
TOTAL	18-19

Associate of Arts

Anthropology (11939)

The Associate of Arts degree in Anthropology is designed as a program of basic courses for students considering professional careers as archeologists, ethnographers, linguists, physical anthropologists; for those preparing to become social science teachers in elementary or secondary schools; for such diverse fields as psychology, medicine, law, political science, international relations, economics, or history; and for individuals who plan public service careers in social work, health and welfare programs, and foreign service. Students should consult with faculty members for advice in selecting course offerings best suited to the individual's particular career objectives. The associate of arts degree prepares the student to move into a curriculum at a four-year institution leading to a baccalaureate degree in these careers.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Study culture in Archaeological context and try to interpret artifacts into economic, religious, political and social context.
- Understand cultures past and present and how cultures fit into modern globalization.
- Understand human biological development over millennium and primates and their social and biological attributes.

Major requirements*

	Units
Anthropology 100/100H, Introduction to Cultural Anthropology	3
Anthropology 101, Introduction to Physical Anthropology	3
Anthropology 103, Introduction to Archaeology	3
Anthropology 104, Language and Culture	3

If emphasis is Cultural Anthropology, select courses from List A. If emphasis is Physical Anthropology, select courses from List B.

Select six (6) units from List A (Cultural Anthropology)

Economics 120, Principles/Macro (3)	6
Ethnic Studies 101, Introduction to Ethnic Studies (3)	
Geography 100/100H, World Regional Geography (3)	
Geography 102, Cultural Geography (3)	
History 101/101H, World Civilizations to the 16th Century (3)	
Psychology 100/100H, Introduction to Psychology (3)	
Sociology 100/100H, Introduction to Sociology (3)	
Women's Studies 101, Introduction to Women's Studies (3)	

Select six (6) units from List B (Physical Anthropology)

Anthropology 101L, Physical Anthropology Laboratory (1)	6
Biology 109/109H, Fundamentals of Biology (3)	
Biology 109L, Fundamentals of Biology Laboratory (1)	
Biology 149, Human Anatomy and Physiology (4)	
Biology 177, Human Genetics (3)	
Biology 211, Cellular and Molecular Biology (5)	
Biology 212, Animal Diversity and Ecology (5)	
Earth Sciences 100, Physical Geology (3)	
Earth Sciences 100L, Physical Geology Laboratory (1)	
Earth Sciences 111, Historical Geology (4)	

TOTAL 18

It is strongly recommended that anthropology majors transferring to the CSU or UC system complete Foreign Language courses at the 201 and 202 level, and Social Sciences 219/219H or Mathematics 219/219H.

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Courses

Anthropology 100

Introduction to Cultural Anthropology

Unit(s): 3.0

Class Hours: 48 Lecture total.

A cross-cultural survey of the major areas of cultural anthropology including subsistence patterns, economic and political systems, family and kinship, religion, and cultural change. Also includes contemporary issues facing humankind such as the environment, resource depletion, ethnic conflict, globalization, and warfare. Emphasis is on understanding cultural diversity and cultural universals. *CSU/UC (C-ID)*

Anthropology 100H

Honors Introduction to Cultural Anthropology

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: A high school or college GPA of 3.0 or above.

This is a seminar style course that is enriched beyond that of ANTH 100, Introduction to Cultural Anthropology. This cross cultural survey course will focus on the four major fields of Cultural Anthropology as well as Applied Anthropology. Cultural systems over time will be studied such as religion, subsistence patterns, economics, kinship and cultural change. Globalization will be addressed as well as contemporary issues of the environment, warfare, resource depletion and ethnic conflict. Emphasis will be on critical thinking, understanding cultural diversity and cultural universals. *CSU/UC (C-ID)*

Anthropology 101

Introduction to Physical Anthropology

Unit(s): 3.0

Class Hours: 48 Lecture total.

An introduction to humankind's place in nature, including evolutionary theory, principles of genetics, primate evolution and behavior, fossil evidence for human evolution, human biology and variation, growth and adaptability, and biomedical anthropology. Includes practical application of biological anthropology to human problems. *CSU/UC*

Anthropology 101L

Physical Anthropology Laboratory

Unit(s): 1.0

Class Hours: 48 Laboratory total.

Prerequisite: Anthropology 101/101H or concurrent enrollment.

Laboratory exercises and experiments designed to explore and understand the primary areas of physical anthropology: evolutionary theory, principles of genetics, comparative anatomy, physiology, behavior and ecology of vertebrates with an emphasis on nonhuman primates, analysis of fossil evidence for human evolution, human biology and variation, growth and adaptability, and biomedical anthropology. Includes both traditional and virtual laboratory experiences. *CSU/UC*

Anthropology 103

Introduction to Archaeology

Unit(s): 3.0

Class Hours: 48 Lecture total.

This is a survey course in world archaeology. Methods of archaeological survey and excavation will be discussed as well as past and current concepts and theories. Material remains such as lithics, bone, ceramics and ecofacts will be discussed as to how they can be interpreted into social, political, economic, religious and ethnic terms. Optional field trips may be offered. *CSU/UC (C-ID)*

Anthropology 104

Language and Culture

Unit(s): 3.0

Class Hours: 48 Lecture total.

General introduction to the processes of human communication. Includes the relationship between language and culture, acquisition of first and second languages, languages in contact, sociolinguistics and the effects of both language and culture on inter/intra group communication. Languages spoken in the local area are used as the basis of study. *CSU/UC*



APPRENTICESHIP CARPENTRY (ACA)

Division of Business and Career Technical Education

Dean: Von Lawson

Apprenticeship Carpentry-Acoustical Installer

The Associate of Science degree and Certificate of Achievement in Apprenticeship Carpentry Acoustical Installer provide the required related and supplemental instruction for interior systems apprentices in the technical skills required in the trade. Successful completion may result in journeyworker status. Interested apprentices should contact the Carpentry Apprenticeship Committee and the Apprenticeship Office at Santiago Canyon College.

Associate of Science Acoustical Installer (31107)

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Be eligible to work as an Acoustical Installer journeyworker.

Major requirements*	Units
Apprenticeship Carpentry 061A, Acoustical Ceilings	1.5
Apprenticeship Carpentry 062, Standard Acoustical Grids	1.5
Apprenticeship Carpentry 063, Suspended Ceilings	1.5
Apprenticeship Carpentry 064, Acoustical Soffits	1.5
Apprenticeship Carpentry 066, Concealed/Glue-Up/ Staple-Up Systems	1.5
Apprenticeship Carpentry 067, Designer and Specialty Trims	1.5
Apprenticeship Carpentry 068, Metal Pan and Security Systems	1.5
Apprenticeship Carpentry 071A, Orientation	2
Apprenticeship Carpentry 071B, Safety and Health Certifications	2
Apprenticeship Carpentry 071C, Tool/Equipment Applications	1.5
Apprenticeship Carpentry 074A, Print Reading	2
Apprenticeship Carpentry 079A, Drywall/Acoustical Ceilings	1.5

Select four (4) courses from the following: 6-6.5

Apprenticeship Carpentry 061B, Advanced Acoustical Ceiling Layout (1.5)	
Apprenticeship Carpentry 061C, Advanced Acoustical Ceiling Installation (1.5)	
Apprenticeship Carpentry 065, Prefab/Sound Panels (1.5)	
Apprenticeship Carpentry 072A, Basic Metal Framing (1.5)	
Apprenticeship Carpentry 073C, Framing Curves and Arches (1.5)	
Apprenticeship Carpentry 074B, Advanced Print Reading (2)	
Apprenticeship Carpentry 083, Door/Door Frames (1.5)	
TOTAL	25.5-26

Certificate of Achievement Acoustical Installer (31109)

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Be eligible to work as an Acoustical Installer journeyworker.

Certificate requirements	Units
Apprenticeship Carpentry 061A, Acoustical Ceilings	1.5
Apprenticeship Carpentry 062, Standard Acoustical Grids	1.5
Apprenticeship Carpentry 063, Suspended Ceilings	1.5
Apprenticeship Carpentry 064, Acoustical Soffits	1.5
Apprenticeship Carpentry 066, Concealed/Glue-Up/ Staple-Up Systems	1.5
Apprenticeship Carpentry 067, Designer and Specialty Trims	1.5
Apprenticeship Carpentry 068, Metal Pan and Security Systems	1.5
Apprenticeship Carpentry 071A, Orientation	2
Apprenticeship Carpentry 071B, Safety and Health Certifications	2

Apprenticeship Carpentry 071C, Tool/Equipment Applications	1.5
Apprenticeship Carpentry 074A, Print Reading	2
Apprenticeship Carpentry 079A, Drywall/Acoustical Ceilings	1.5

Select four (4) courses from the following: 6-6.5

Apprenticeship Carpentry 061B, Advanced Acoustical Ceiling Layout (1.5)	
Apprenticeship Carpentry 061C, Advanced Acoustical Ceiling Installation (1.5)	
Apprenticeship Carpentry 065, Prefab/Sound Panels (1.5)	
Apprenticeship Carpentry 072A, Basic Metal Framing (1.5)	
Apprenticeship Carpentry 073C, Framing Curves and Arches (1.5)	
Apprenticeship Carpentry 074B, Advanced Print Reading (2)	
Apprenticeship Carpentry 083, Door/Door Frames (1.5)	
TOTAL	25.5-26

Apprenticeship Carpentry-Concrete

The Associate of Science degree and Certificate of Achievement in Apprenticeship Carpentry Concrete are designed to provide the related and supplemental instruction required for carpentry apprentices. Concrete finishers place and finish concrete floors, driveways, sidewalks, curbs, bridge decks and other concrete structures. They apply architectural exposed, patterned or stamped, broomed and smooth finishes on concrete surfaces. They are skilled at repairing, waterproofing and restoring concrete surfaces. Successful completion may result in journeyworker status. Interested apprentices should contact the Carpentry Apprenticeship Committee and the Apprenticeship Office at Santiago Canyon College.

Associate of Science Concrete (13235)

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Be eligible to work as a Concrete journeyworker.
- Have a basis for further college education.

Major requirements*	Units
Apprenticeship Carpentry 004C, Print Reading	2
Apprenticeship Carpentry 021A, Orientation	2
Apprenticeship Carpentry 021B, Safety and Health Certifications	2
Apprenticeship Carpentry 021E, Tool/Equipment Applications	1.5
Apprenticeship Carpentry 025A, Foundations and Flatwork	1.5
Apprenticeship Carpentry 026A, Tilt-Up Panel Construction	1.5
Apprenticeship Carpentry 026B, Wall Forming	1.5
Apprenticeship Carpentry 026C, Gang Forms/Columns	1.5
Apprenticeship Carpentry 026D, Abutments	1.5
Apprenticeship Carpentry 027C, Beam and Deck Forming	1.5
Apprenticeship Carpentry 027D, Stairs and Ramp Forming	1.5
Apprenticeship Carpentry 028A, Bridge Construction	1.5

Select four (4) courses from the following: 6-7

Apprenticeship Carpentry 021C, Basic Wall Framing (1.5)	
Apprenticeship Carpentry 022A, Commercial Floor Framing (1.5)	
Apprenticeship Carpentry 023B, Basic Roof Framing (1.5)	
Apprenticeship Carpentry 024A, Basic Commercial Framing (1.5)	
Apprenticeship Carpentry 024D, Transit Level/Laser (2)	
Apprenticeship Carpentry 025D, Advanced Print Reading (2)	
Apprenticeship Carpentry 028E, Bridge Falsework (1.5)	
Apprenticeship Carpentry 029A, Rigging (1.5)	
Apprenticeship Carpentry 029C, Solar Installer Level 1 (1.5)	
Apprenticeship Carpentry 095, Water Treatment Facilities (1.5)	
TOTAL	25.5-26.5

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Certificate of Achievement Concrete (21657)

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Be eligible to work as a Concrete journeyworker.
- Have a basis for further college education.

Certificate requirements	Units
Apprenticeship Carpentry 004C, Print Reading	2
Apprenticeship Carpentry 021A, Orientation	2
Apprenticeship Carpentry 021B, Safety and Health Certifications	2
Apprenticeship Carpentry 021E, Tool/Equipment Applications	1.5
Apprenticeship Carpentry 025A, Foundations and Flatwork	1.5
Apprenticeship Carpentry 026A, Tilt-Up Panel Construction	1.5
Apprenticeship Carpentry 026B, Wall Forming	1.5
Apprenticeship Carpentry 026C, Gang Forms/Columns	1.5
Apprenticeship Carpentry 026D, Abutments	1.5
Apprenticeship Carpentry 027C, Beam and Deck Forming	1.5
Apprenticeship Carpentry 027D, Stairs and Ramp Forming	1.5
Apprenticeship Carpentry 028A, Bridge Construction	1.5

Select four (4) courses from the following: 6-7

Apprenticeship Carpentry 021C, Basic Wall Framing (1.5)
Apprenticeship Carpentry 022A, Commercial Floor Framing (1.5)
Apprenticeship Carpentry 023B, Basic Roof Framing (1.5)
Apprenticeship Carpentry 024A, Basic Commercial Framing (1.5)
Apprenticeship Carpentry 024D, Transit Level/Laser (2)
Apprenticeship Carpentry 025D, Advanced Print Reading (2)
Apprenticeship Carpentry 028E, Bridge Falsework (1.5)
Apprenticeship Carpentry 029A, Rigging (1.5)
Apprenticeship Carpentry 029C, Solar Installer Level 1 (1.5)
Apprenticeship Carpentry 095, Water Treatment Facilities (1.5)

TOTAL 25.5-26.5

Apprenticeship Carpentry-Drywall Finisher

The Associate of Science degree and Certificate of Achievement in Apprenticeship Carpentry Drywall Finisher are designed to provide related and supplemental instruction including the technical skills required in the trade. Successful completion may result in journeyworker status. Interested apprentices should contact the Carpentry Apprenticeship Committee and the Apprenticeship Office at Santiago Canyon College.

Associate of Science Drywall Finisher (13234)

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Have a basis for further college education.
- Begin a career as a journeyworker drywall finisher.

Major requirements*	Units
Apprenticeship Carpentry 071A, Orientation	2
Apprenticeship Carpentry 071B, Safety and Health Certifications	2
Apprenticeship Carpentry 072A, Basic Metal Framing	1.5
Apprenticeship Carpentry 074A, Print Reading	2
Apprenticeship Carpentry 076A, Basic Hand Finishing	1.5
Apprenticeship Carpentry 076B, Automatic Finishing Tools	1.5
Apprenticeship Carpentry 077A, Drywall Installation/Finish Trims	1.5
Apprenticeship Carpentry 077B, Advanced Hand Finishing	1.5
Apprenticeship Carpentry 077C, Advanced Automatic Finishing Tools	1.5
Apprenticeship Carpentry 078B, Advanced Metal Framing	1.5
Apprenticeship Carpentry 078C, Wet Wall Finishes	1.5
Apprenticeship Carpentry 078D, Ceiling and Soffit Finishing	1.5
Apprenticeship Carpentry 079A, Drywall/Acoustical Ceilings	1.5

Apprenticeship Carpentry 082B, Firestopping Procedures	1.5
Apprenticeship Carpentry 082C, Decorative Trims and Textures	1.5
TOTAL	24

Certificate of Achievement Drywall Finisher (21663)

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Have a basis for further college education.
- Begin a career as a journeyworker drywall finisher.

Certificate requirements	Units
Apprenticeship Carpentry 071A, Orientation	2
Apprenticeship Carpentry 071B, Safety and Health Certifications	2
Apprenticeship Carpentry 072A, Basic Metal Framing	1.5
Apprenticeship Carpentry 074A, Print Reading	2
Apprenticeship Carpentry 076A, Basic Hand Finishing	1.5
Apprenticeship Carpentry 076B, Automatic Finishing Tools	1.5
Apprenticeship Carpentry 077A, Drywall Installation/Finish Trims	1.5
Apprenticeship Carpentry 077B, Advanced Hand Finishing	1.5
Apprenticeship Carpentry 077C, Advanced Automatic Finishing Tools	1.5
Apprenticeship Carpentry 078B, Advanced Metal Framing	1.5
Apprenticeship Carpentry 078C, Wet Wall Finishes	1.5
Apprenticeship Carpentry 078D, Ceiling and Soffit Finishing	1.5
Apprenticeship Carpentry 079A, Drywall/Acoustical Ceilings	1.5
Apprenticeship Carpentry 082B, Firestopping Procedures	1.5
Apprenticeship Carpentry 082C, Decorative Trims and Textures	1.5
TOTAL	24

Apprenticeship Carpentry-Drywall/Lather

The Associate of Science degree and Certificate of Achievement in Apprenticeship Carpentry Drywall/Lather provide the related and supplemental instruction required for interior systems apprentices. Drywall/Lathers install metal stud framing, drywall, and lath according to layout plans, blueprints, and specifications. They frame and construct walls and ceilings to the necessary height and dimensions, and complete the construction for the interior/exterior of a building including the heavy gage framing and application for the exterior of the project. Successful completion may result in journeyworker status. Interested apprentices should contact the Carpentry Apprenticeship Committee and the Apprenticeship Office at Santiago Canyon College.

Associate of Science Drywall/Lather (11988)

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Safely operate tools and equipment used by drywall applicators in the construction industry.
- Interpret prints to determine the appropriate use of construction methods and materials consistent with drywall applicator industry standards.

Major requirements*	Units
Apprenticeship Carpentry 071A, Orientation	2
Apprenticeship Carpentry 071B, Safety and Health Certifications	2
Apprenticeship Carpentry 071C, Tool/Equipment Applications	1.5
Apprenticeship Carpentry 072A, Basic Metal Framing	1.5
Apprenticeship Carpentry 072B, Basic Lathing	1.5
Apprenticeship Carpentry 073A, Framing Ceilings and Soffits	1.5
Apprenticeship Carpentry 073B, Framing Suspended Ceilings	1.5
Apprenticeship Carpentry 073C, Framing Curves and Arches	1.5
Apprenticeship Carpentry 074A, Print Reading	2
Apprenticeship Carpentry 074B, Advanced Print Reading	2

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Apprenticeship Carpentry 075A, Light Gage Welding AWS - A	1.5
Apprenticeship Carpentry 083, Door/Door Frames	1.5

Select six (6) units from the following: 6

Apprenticeship Carpentry 072C, Advanced Lathing (1.5)	
Apprenticeship Carpentry 074C, Air, Moisture and Thermal Barrier (1.5)	
Apprenticeship Carpentry 075B, Light Gage Welding LAC (1.5)	
Apprenticeship Carpentry 075C, Light Gage Welding AWS - B (1.5)	
Apprenticeship Carpentry 076A, Basic Hand Finishing (1.5)	
Apprenticeship Carpentry 076B, Automatic Finishing Tools (1.5)	
Apprenticeship Carpentry 077A, Drywall Installation/Finish Trims (1.5)	
Apprenticeship Carpentry 077B, Advanced Hand Finishing (1.5)	
Apprenticeship Carpentry 077C, Advanced Automatic Finishing Tools (1.5)	
Apprenticeship Carpentry 078B, Advanced Metal Framing (1.5)	
Apprenticeship Carpentry 078C, Wet Wall Finishes (1.5)	
Apprenticeship Carpentry 078D, Ceiling and Soffit Finishing (1.5)	
Apprenticeship Carpentry 079A, Drywall/Acoustical Ceilings (1.5)	
Apprenticeship Carpentry 079C, Drywall Applications (1.5)	
Apprenticeship Carpentry 082B, Firestopping Procedures (1.5)	
Apprenticeship Carpentry 082C, Decorative Trims and Textures (1.5)	
Apprenticeship Carpentry 089, Freeform Lathing (1.5)	
TOTAL	26

**Certificate of Achievement
Drywall/Lather (21664)**

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Safely operate tools and equipment used by drywall applicators in the construction industry.
- Interpret prints to determine the appropriate use of construction methods and materials consistent with drywall applicator industry standards.

Certificate requirements	Units
Apprenticeship Carpentry 071A, Orientation	2
Apprenticeship Carpentry 071B, Safety and Health Certifications	2
Apprenticeship Carpentry 071C, Tool/Equipment Applications	1.5
Apprenticeship Carpentry 072A, Basic Metal Framing	1.5
Apprenticeship Carpentry 072B, Basic Lathing	1.5
Apprenticeship Carpentry 073A, Framing Ceilings and Soffits	1.5
Apprenticeship Carpentry 073B, Framing Suspended Ceilings	1.5
Apprenticeship Carpentry 073C, Framing Curves and Arches	1.5
Apprenticeship Carpentry 074A, Print Reading	2
Apprenticeship Carpentry 074B, Advanced Print Reading	2
Apprenticeship Carpentry 075A, Light Gage Welding AWS - A	1.5
Apprenticeship Carpentry 083, Door/Door Frames	1.5

Select six (6) units from the following: 6

Apprenticeship Carpentry 072C, Advanced Lathing (1.5)	
Apprenticeship Carpentry 074C, Air, Moisture and Thermal Barrier (1.5)	
Apprenticeship Carpentry 075B, Light Gage Welding LAC (1.5)	
Apprenticeship Carpentry 075C, Light Gage Welding AWS - B (1.5)	
Apprenticeship Carpentry 076A, Basic Hand Finishing (1.5)	
Apprenticeship Carpentry 076B, Automatic Finishing Tools (1.5)	
Apprenticeship Carpentry 077A, Drywall Installation/Finish Trims (1.5)	
Apprenticeship Carpentry 077B, Advanced Hand Finishing (1.5)	
Apprenticeship Carpentry 077C, Advanced Automatic Finishing Tools (1.5)	
Apprenticeship Carpentry 078B, Advanced Metal Framing (1.5)	
Apprenticeship Carpentry 078C, Wet Wall Finishes (1.5)	
Apprenticeship Carpentry 078D, Ceiling and Soffit Finishing (1.5)	
Apprenticeship Carpentry 079A, Drywall/Acoustical Ceilings (1.5)	
Apprenticeship Carpentry 079C, Drywall Applications (1.5)	
Apprenticeship Carpentry 082B, Firestopping Procedures (1.5)	
Apprenticeship Carpentry 082C, Decorative Trims and Textures (1.5)	
Apprenticeship Carpentry 089, Freeform Lathing (1.5)	
TOTAL	26

Apprenticeship Carpentry-Finish Carpentry

The Associate of Science degree and Certificate of Achievement in Apprenticeship Carpentry Finish Carpentry provide the related and supplemental instruction required in the trade. Finish carpenters cut, shape and assemble wood products, including moldings, panels and furniture. They also fabricate store fixtures, which includes the use of metal, plastics, and glass. Successful completion may result in journeyworker status. Interested apprentices should contact the Carpentry Apprenticeship Committee and the Apprenticeship Office at Santiago Canyon College.

**Associate of Science
Finish Carpentry (13231)**

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Begin a career as a journeyworker carpenter.
- Have a basis for further college education.

Major requirements*	Units
Apprenticeship Carpentry 004C, Print Reading	2
Apprenticeship Carpentry 021A, Orientation	2
Apprenticeship Carpentry 021B, Safety and Health Certifications	2
Apprenticeship Carpentry 021C, Basic Wall Framing	1.5
Apprenticeship Carpentry 024D, Transit Level/Laser	2
Apprenticeship Carpentry 025D, Advanced Print Reading	2
Apprenticeship Carpentry 033A, Cabinet Millwork and Assembly	1.5
Apprenticeship Carpentry 033B, Cabinet Installation	1.5
Apprenticeship Carpentry 033C, Show Case/Loose Store Fixture	1.5
Apprenticeship Carpentry 033D, Moldings and Trims	1.5
Apprenticeship Carpentry 034A, Plastic Laminates	1.5
Apprenticeship Carpentry 034B, Solid Surface and Stone Countertops	1.5
Apprenticeship Carpentry 034C, Stair Trim	1.5
Apprenticeship Carpentry 034D, Doors and Door Hardware	1.5
Apprenticeship Carpentry 035C, Exit and Electrical Security Devices	1.5
TOTAL	25

**Certificate of Achievement
Finish Carpentry (21658)**

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Begin a career as a journeyworker carpenter.
- Have a basis for further college education.

Certificate requirements	Units
Apprenticeship Carpentry 004C, Print Reading	2
Apprenticeship Carpentry 021A, Orientation	2
Apprenticeship Carpentry 021B, Safety and Health Certifications	2
Apprenticeship Carpentry 021C, Basic Wall Framing	1.5
Apprenticeship Carpentry 024D, Transit Level/Laser	2
Apprenticeship Carpentry 025D, Advanced Print Reading	2
Apprenticeship Carpentry 033A, Cabinet Millwork and Assembly	1.5
Apprenticeship Carpentry 033B, Cabinet Installation	1.5
Apprenticeship Carpentry 033C, Show Case/Loose Store Fixture	1.5
Apprenticeship Carpentry 033D, Moldings and Trims	1.5
Apprenticeship Carpentry 034A, Plastic Laminates	1.5
Apprenticeship Carpentry 034B, Solid Surface and Stone Countertops	1.5
Apprenticeship Carpentry 034C, Stair Trim	1.5
Apprenticeship Carpentry 034D, Doors and Door Hardware	1.5
Apprenticeship Carpentry 035C, Exit and Electrical Security Devices	1.5
TOTAL	25

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Apprenticeship Carpentry-Framing

The Associate of Science degree and Certificate of Achievement in Apprenticeship Carpentry Framing provide related and supplemental instruction including the technical skills and knowledge required in the trade. Framers work primarily on residential sites installing floor joists, interior and exterior walls, and roof trusses. They may also install exterior doors and windows, cornices, outside wall trim, and roof coverings. Successful completion may result in journeyworker status. Interested apprentices should contact the Carpentry Apprenticeship Committee and the Apprenticeship Office at Santiago Canyon College.

Associate of Science Framing (13232)

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Safely operate tools and equipment used by framers in the carpentry trade.
- Interpret prints to determine the appropriate use of construction methods and materials consistent with carpentry industry standards.

Major requirements*	Units
Apprenticeship Carpentry 004C, Print Reading	2
Apprenticeship Carpentry 021A, Orientation	2
Apprenticeship Carpentry 021B, Safety and Health Certifications	2
Apprenticeship Carpentry 021C, Basic Wall Framing	1.5
Apprenticeship Carpentry 021E, Tool/Equipment Applications	1.5
Apprenticeship Carpentry 022A, Commercial Floor Framing	1.5
Apprenticeship Carpentry 022B, Basic Stairs	1.5
Apprenticeship Carpentry 022D, Exterior Finish Details	1.5
Apprenticeship Carpentry 023B, Basic Roof Framing	1.5
Apprenticeship Carpentry 024A, Basic Commercial Framing	1.5
Apprenticeship Carpentry 024B, Advanced Commercial Framing	1.5
Apprenticeship Carpentry 025C, Advanced Stairs	1.5
Select four (4) courses from the following:	6-7
Apprenticeship Carpentry 023C, Advanced Roof Framing (1.5)	
Apprenticeship Carpentry 024C, Panelized Roofing (1.5)	
Apprenticeship Carpentry 024D, Transit Level/Laser (2)	
Apprenticeship Carpentry 025D, Advanced Print Reading (2)	
Apprenticeship Carpentry 026B, Wall Forming (1.5)	
Apprenticeship Carpentry 072A, Basic Metal Framing (1.5)	
TOTAL	25.5-26.5

Certificate of Achievement Framing (21659)

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Safely operate tools and equipment used by framers in the carpentry trade.
- Interpret prints to determine the appropriate use of construction methods and materials consistent with carpentry industry standards.

Certificate requirements	Units
Apprenticeship Carpentry 004C, Print Reading	2
Apprenticeship Carpentry 021A, Orientation	2
Apprenticeship Carpentry 021B, Safety and Health Certifications	2
Apprenticeship Carpentry 021C, Basic Wall Framing	1.5
Apprenticeship Carpentry 021E, Tool/Equipment Applications	1.5
Apprenticeship Carpentry 022A, Commercial Floor Framing	1.5
Apprenticeship Carpentry 022B, Basic Stairs	1.5
Apprenticeship Carpentry 022D, Exterior Finish Details	1.5
Apprenticeship Carpentry 023B, Basic Roof Framing	1.5
Apprenticeship Carpentry 024A, Basic Commercial Framing	1.5
Apprenticeship Carpentry 024B, Advanced Commercial Framing	1.5
Apprenticeship Carpentry 025C, Advanced Stairs	1.5

Select four (4) courses from the following: 6-7

Apprenticeship Carpentry 023C, Advanced Roof Framing (1.5)
 Apprenticeship Carpentry 024C, Panelized Roofing (1.5)
 Apprenticeship Carpentry 024D, Transit Level/Laser (2)
 Apprenticeship Carpentry 025D, Advanced Print Reading (2)
 Apprenticeship Carpentry 026B, Wall Forming (1.5)
 Apprenticeship Carpentry 072A, Basic Metal Framing (1.5)

TOTAL 25.5-26.5

Apprenticeship Carpentry-Plastering

The Associate of Science degree and Certificate of Achievement in Apprenticeship Carpentry Plastering provide the required related and supplemental instruction for apprentice plasterers in the technical skills and knowledge required in the trade. Plasterers apply various wet materials over surfaces on both exterior and interior walls, ceilings and other surfaces in the construction industry. Successful completion may result in journeyworker status. Those interested should contact the Carpentry Apprenticeship Committee and the Apprenticeship Office at Santiago Canyon College.

Associate of Science Plastering (31705)

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Safely operate tools and equipment used by plasterers in the construction industry.
- Interpret prints to determine the appropriate use of construction methods and materials consistent with plastering industry standards.

Major requirements*	Units
Apprenticeship Carpentry 071A, Orientation	2
Apprenticeship Carpentry 071B, Safety and Health Certifications	2
Apprenticeship Carpentry 074A, Print Reading	2
Apprenticeship Carpentry Plastering 023, Tool/Equipment Applications	1.5
Apprenticeship Carpentry Plastering 025, Basic Plastering	1.5
Apprenticeship Carpentry Plastering 026, Exterior Plastering	1.5
Apprenticeship Carpentry Plastering 027, Dot and Screed Techniques	1.5
Apprenticeship Carpentry Plastering 028, Interior Plastering	1.5
Apprenticeship Carpentry Plastering 029, Tender and Plastering Equipment	1.5
Apprenticeship Carpentry Plastering 030, Exterior Insulation Finish Systems (EIFS)	1.5
Apprenticeship Carpentry Plastering 031, Ornamental Plastering	1.5
Apprenticeship Carpentry Plastering 032, Plastering Equipment Application	1.5

Select four (4) courses from the following: 6-7.5

Apprenticeship Carpentry 072B, Basic Lathing (1.5)
 Apprenticeship Carpentry 074B, Advanced Print Reading (2)
 Apprenticeship Carpentry 082B, Firestopping Procedures (1.5)
 Apprenticeship Carpentry Plastering 033, Finish Applications (1.5)
 Apprenticeship Carpentry Plastering 034, Theme Plastering (1.5)
 Apprenticeship Modular Furnishings Installation 030, Crew Lead
 Customer Service Training (2.5)

TOTAL 25.5-27



**Certificate of Achievement
Plastering (31706)**

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Safely operate tools and equipment used by plasterers in the construction industry.
- Interpret prints to determine the appropriate use of construction methods and materials consistent with plastering industry standards.

Certificate requirements	Units
Apprenticeship Carpentry 071A, Orientation	2
Apprenticeship Carpentry 071B, Safety and Health Certifications	2
Apprenticeship Carpentry 074A, Print Reading	2
Apprenticeship Carpentry Plastering 023, Tool/Equipment Applications	1.5
Apprenticeship Carpentry Plastering 025, Basic Plastering	1.5
Apprenticeship Carpentry Plastering 026, Exterior Plastering	1.5
Apprenticeship Carpentry Plastering 027, Dot and Screed Techniques	1.5
Apprenticeship Carpentry Plastering 028, Interior Plastering	1.5
Apprenticeship Carpentry Plastering 029, Tender and Plastering Equipment	1.5
Apprenticeship Carpentry Plastering 030, Exterior Insulation Finish Systems (EIFS)	1.5
Apprenticeship Carpentry Plastering 031, Ornamental Plastering	1.5
Apprenticeship Carpentry Plastering 032, Plastering Equipment Application	1.5
Select four (4) courses from the following:	6-7.5
Apprenticeship Carpentry 072B, Basic Lathing (1.5)	
Apprenticeship Carpentry 074B, Advanced Print Reading (2)	
Apprenticeship Carpentry 082B, Firestopping Procedures (1.5)	
Apprenticeship Carpentry Plastering 033, Finish Applications (1.5)	
Apprenticeship Carpentry Plastering 034, Theme Plastering (1.5)	
Apprenticeship Modular Furnishings Installation 030, Crew Lead Customer Service Training (2.5)	
TOTAL	25.5-27

Apprenticeship Carpentry-Tilt-Up

The Associate of Science degree and Certificate of Achievement in Apprenticeship Carpentry Tilt-up are designed to provide related and supplemental instruction including the technical skills and knowledge required in the trade. Tilt-up apprentices work with slabs of concrete which, after attaining proper strength, are lifted (tilted) with a crane and set on prepared foundations to form the exterior walls of a building. The erected panels are temporarily braced, connected, and the joints between them caulked. Tilt-up workers may construct and attach the roof structure to the walls to complete the building shell. Tilt-up construction is used for nearly every type of one- to four-story building. Successful completion may result in journeyworker status. Interested apprentices should contact the Carpentry Apprenticeship Committee and the Apprenticeship Office at Santiago Canyon College.

**Associate of Science
Tilt-Up (13233)**

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Safely operate tools and equipment used by carpenters in the tilt-up construction industry.
- Interpret prints to determine the appropriate use of construction methods and materials consistent with tilt-up construction standards.

Major requirements*	Units
Apprenticeship Carpentry 002B, Slabs/Interior-Exterior Footings	1.5
Apprenticeship Carpentry 003A, Tilt-Up Introduction	1.5
Apprenticeship Carpentry 004A, Lifting and Bracing Safety	1.5
Apprenticeship Carpentry 005A, Wall-Column Forms/ Cutting and Burning	1.5
Apprenticeship Carpentry 005C, Specialized Forms and Rigging	1.5
Apprenticeship Carpentry 021A, Orientation	2
Apprenticeship Carpentry 021B, Safety and Health Certifications	2
Apprenticeship Carpentry 024D, Transit Level/Laser	2
Apprenticeship Carpentry 027D, Stairs and Ramp Forming	1.5
Select six (6) units from the following:	6
Apprenticeship Carpentry 004B, Poured-in-Place Wall Forms (1.5)	
Apprenticeship Carpentry 005B, Site Work/Curb and Gutter (1.5)	
Apprenticeship Carpentry 021C, Basic Wall Framing (1.5)	
Apprenticeship Carpentry 022A, Commercial Floor Framing (1.5)	
Apprenticeship Carpentry 022E, Commercial Roof Framing (1.5)	
Apprenticeship Carpentry 025A, Foundations and Flatwork (1.5)	
Apprenticeship Carpentry 026B, Wall Forming (1.5)	
Apprenticeship Carpentry 029A, Rigging (1.5)	
TOTAL	21

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Certificate of Achievement Tilt-Up (21660)

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Safely operate tools and equipment used by carpenters in the tilt-up construction industry.
- Interpret prints to determine the appropriate use of construction methods and materials consistent with tilt-up construction standards.

Major requirements* Units

Apprenticeship Carpentry 002B, Slabs/Interior-Exterior Footings	1.5
Apprenticeship Carpentry 003A, Tilt-Up Introduction	1.5
Apprenticeship Carpentry 004A, Lifting and Bracing Safety	1.5
Apprenticeship Carpentry 005A, Wall-Column Forms/ Cutting and Burning	1.5
Apprenticeship Carpentry 005C, Specialized Forms and Rigging	1.5
Apprenticeship Carpentry 021A, Orientation	2
Apprenticeship Carpentry 021B, Safety and Health Certifications	2
Apprenticeship Carpentry 024D, Transit Level/Laser	2
Apprenticeship Carpentry 027D, Stairs and Ramp Forming	1.5

Select six (6) units from the following: 6

Apprenticeship Carpentry 004B, Poured-in-Place Wall Forms (1.5)	
Apprenticeship Carpentry 005B, Site Work/Curb and Gutter (1.5)	
Apprenticeship Carpentry 021C, Basic Wall Framing (1.5)	
Apprenticeship Carpentry 022A, Commercial Floor Framing (1.5)	
Apprenticeship Carpentry 022E, Commercial Roof Framing (1.5)	
Apprenticeship Carpentry 025A, Foundations and Flatwork (1.5)	
Apprenticeship Carpentry 026B, Wall Forming (1.5)	
Apprenticeship Carpentry 029A, Rigging (1.5)	

TOTAL 21

Courses

Apprenticeship Carpentry 002B Slabs/Interior-Exterior Footings

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This class highlights the techniques and procedures used in the layout and setting of footing forms according to prints and shop drawings. Introduction of slab construction for casting tilt up panels will be discussed. Acceptable elevation tolerances, proper concrete placement and slab leveling will be stressed. Open Entry/Open Exit.

Apprenticeship Carpentry 003A Tilt-Up Introduction

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Designed to familiarize tilt-up students with basic panel types and typical construction methods used in the tilt-up industry. This course identifies panel features, applications, specialty hardware, and provides an overview of the construction and placement of tilt-up panels. Open Entry/Open Exit.

Apprenticeship Carpentry 004A Lifting, and Bracing Safety

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This class will describe the lifting procedures and accident prevention measures necessary to safely raise and place tilt-up panels. Students will be introduced to various types of bond breakers used in the industry. Product catalogs will be used to review the proper use of each product. Safety practices on the connection points and bracing of wall panels will be discussed in detail. Manufactures specification on specific hardware used to secure temporary braces will also be covered. Students will review all safety aspects of rigging and setting panels with the crane. Open Entry/Open Exit.

Apprenticeship Carpentry 004B Poured-in-Place Wall Forms

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course provides instruction for poured-in place wall systems and will highlight decorative finish applications. Both basic formwork procedures and additional techniques to create embellished wall details on finished concrete surfaces will be presented. Students will identify materials such as exposed aggregate, faux veneers, and various artistic impressions used to create architectural features as part of the finished surface design. The importance of formwork alignment and reinforcement will be emphasized during manipulative exercises. Open Entry/Open Exit.

Apprenticeship Carpentry 004C Print Reading

Unit(s): 2.0

Class Hours: 30 Lecture total, 10 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course introduces basic visualization skills needed for reading and interpreting construction prints. Views, elevations and the role of specifications as they relate to building details on prints will be discussed. Open Entry/Open Exit.

Apprenticeship Carpentry 005A Wall-Column Forms/Cutting and Burning

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course presents the forming methods and techniques used in the construction of reinforced concrete walls and columns. Form design, print reading, estimating, and hands-on projects for single and double waler forming systems will be included. Students will be introduced to safe operating and cutting procedures for the oxygen-acetylene torch. Open Entry/Open Exit.

Apprenticeship Carpentry 005B Site Work/Curb and Gutter

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course covers the forming methods and techniques used in the construction of site work, curbs and gutters. Site work layout, elevation, and construction practices will be presented. Jobsite safety, print interpretation, material identification and site preparation will be included in the training. Students will construct sidewalk, curb and gutter forms to prints specifications. Open Entry/Open Exit.



**Apprenticeship Carpentry 005C
Specialized Forms and Rigging**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course will instruct students in the construction of specialized forms used to create exterior architectural design feature on tilt-up buildings. An emphasis will be placed on interpretation of design feature details on prints, location of rigging points, and building methods for selected forms. In addition to concrete calculations, practical assignments will focus on rigging safety, load formulas, lifting hardware and procedures. Open Entry/Open Exit.

Apprenticeship Carpentry 021A

Orientation

Unit(s): 2.0

Class Hours: 30 Lecture total, 10 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course examines fundamental trade skills, employee-employer roles and responsibilities, and safe work practices needed for entry-level performance in the construction industry. While an emphasis will be placed on attaining standard industry safety credentials, the course is designed to provide students with practical experience using construction terminology, mathematic operations and basic measuring techniques, and tool identification and use in preparation for the next level of training. Safety will cover OSHA training for jobsite hazard recognition, accident prevention, and safe tool and equipment operation. Open Entry/Open Exit.

Apprenticeship Carpentry 021B

Safety and Health Certifications

Unit(s): 2.0

Class Hours: 30 Lecture total, 10 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course covers the safe and appropriate use of hazardous communication systems, fall protection, fork lifts, and emergency response procedures. Upon successful completion, students will be issued an American Red Cross First Aid/CPR Certification Card, and United Brotherhood of Carpenters (UBC) Fall Protection, Hazard Communication and Chemical Safety, and Forklift Qualification Cards. Open Entry/Open Exit.

Apprenticeship Carpentry 021C

Basic Wall Framing

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course presents wall construction theory, methods, and procedures required to frame basic residential walls. Practical experience using proper tool techniques and appropriate materials will provide students with fundamental skill development. An introduction to print reading will prepare students to locate measurements for determining wall lengths and size of openings. Students will perform basic wall layout tasks, use plating procedures, and assemble and brace framing before aligning and completing the selected wall construction project to industry standards. Open Entry/Open Exit.

Apprenticeship Carpentry 021E

Tool/Equipment Applications

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice. Apprenticeship Carpentry 021A and 021B.

This course promotes hand/power tool and equipment skill development for various construction applications. Scaffold building and aerial lift safety and operating procedures will also be covered. Upon successful completion, students will be issued United Brotherhood of Carpenters (UBC) Aerial Lift and Scaffold Erector-Welded Frame Qualification Cards. Open Entry/Open Exit.

**Apprenticeship Carpentry 022A
Commercial Floor Framing**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course covers floor joist construction and the various installation techniques used in the commercial industry. Students will interpret floor plans for job planning, identify floor joist system, and calculate material take offs. Integration of wall plating, joist layout and floor sheathing methods will be included. Instruction will incorporate measuring skills, use of math operations, specialty hardware applications, and identification of appropriate building codes. Open Entry/Open Exit.

Apprenticeship Carpentry 022B

Basic Stairs

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course provides an introduction to stair framing theory, terminology and construction techniques. Students will interpret floor plans and drawing elevations for job planning, and to layout and detail stair stringers. Methods for calculating the number of stairs, landing height, stair threads and riser dimensions will be presented and practiced. Instruction will include measuring skills, mathematical principles, stair and handrail fabrication, assembly and installation. Open Entry/Open Exit.

Apprenticeship Carpentry 022D

Exterior Finish Details

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

In this course the terminology, design considerations and construction techniques for various types of exterior detail installations will be covered. Students will use plan views and drawing elevations for job planning activities, including calculating dimensions and materials, identifying wall covering types and other exterior construction details. Students will apply the construction techniques presented to complete various exterior detail installations to print specifications. Open Entry/Open Exit.

Apprenticeship Carpentry 022E

Commercial Roof Framing

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course provides an introduction to basic gable roof framing, terminology and construction methods. Students will interpret plan and elevation views to determine rafter systems and layout details to complete project assignments. Open Entry/Open Exit.

Apprenticeship Carpentry 023B

Basic Roof Framing

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course provides an introduction to basic gable roof framing, terminology, characteristics and construction methods. Students will interpret print views and drawing elevations for job planning, and to determine rafter systems and layout details. Basic rise, run, rafter angles and length calculations will be practiced. Framed wall construction will be incorporate to facilitate the gable roof assembly techniques and installation procedures that are the focus of this training. Open Entry/Open Exit.



Apprenticeship Carpentry 023C Advanced Roof Framing

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course provides the advanced skills used to frame hip roof types, and includes terminology, roof characteristics and construction methods. Students will interpret print views and elevations for job planning to determine hip roof rafter systems and layout details. Students will perform rise, run, rafter angles and length calculations. Framed wall construction will be incorporated to facilitate the hip roof assembly techniques and installation procedures that are the focus of this training. Open Entry/Open Exit.

Apprenticeship Carpentry 024A Basic Commercial Framing

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course provides an introduction to basic wall framing theory and commercial construction techniques. Floor plan interpretation will be used by students for job planning, design recognition, and to determine materials. Students will layout and detail wall plates for locating basic wall components and door openings typically found on commercial projects. Instruction will include measuring skills, mathematical principles, wall assembly and installation procedures, and detail how structural connections are made. Open Entry/Open Exit.

Apprenticeship Carpentry 024B Advanced Commercial Framing

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course incorporates advanced commercial wall framing theory and construction techniques with structural hardware and shear panel installation. Students will interpret floor plans for job planning to layout and detail plates for complex wall configurations, rake walls and wall openings. Instruction will include measuring skills, use of mathematical principles, wall construction, plywood shear panel installation, and structural hardware attachment. Open Entry/Open Exit.

Apprenticeship Carpentry 024C Panelized Roofing

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course covers the structural components and building techniques associated with heavy timber construction and panelized roof systems. The advantages and types of manufactured wood used, and their load carrying strength, span, and spacing will be discussed. A distinction between standard post and beam, and heavy timber construction will be emphasized. Students will interpret floor plan, section views and drawing elevations for job planning to layout and construct a heavy timber post and beam supported panelized roof. Open Entry/Open Exit.

Apprenticeship Carpentry 024D Transit Level/Laser

Unit(s): 2.0

Class Hours: 30 Lecture total, 10 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course covers the terminology, optical principles, and operating procedures for the transit and laser levels. Open Entry/Open Exit.

Apprenticeship Carpentry 024E Total Station I

Unit(s): 2.0

Class Hours: 30 Lecture total, 10 Laboratory total.

Prerequisite: Must be a state-indentured apprentice. Apprenticeship Carpentry 021A and 021B.

This course discusses the evolution of survey and layout instruments and the advantages of using a total station for building layout over traditional methods. Students will set up a total station and configure the software. Exercises will include working in teams to stake out points and record point data using the total station. Equipment maintenance and troubleshooting are also discussed. Open Entry/Open Exit.

Apprenticeship Carpentry 025 Welding Fabrication

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice. Apprenticeship Carpentry 021A and 021B.

This course provides an introduction to the layout, cutting, and basic welding skills used in the fabrication process. The students will practice using oxy-acetylene equipment and accessories to setup, cut, shape, grind, weld, file, heat and bend metal parts. Training will include fundamental arc welding techniques to fabricate project components. Open Entry/Open Exit.

Apprenticeship Carpentry 025A Foundations and Flatwork

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course covers the design and function of several types of foundations and concrete flatwork. The methods, techniques and procedures for formwork layout, elevation, and construction will be presented and applied by students during practical assignments. Jobsite safety, print interpretation, material identification, and basic use of the builders' level will be included in the training. Students will construct three selected formwork projects. Open Entry/Open Exit.

Apprenticeship Carpentry 025C Advanced Stairs

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course is designed to enhance the students' existing skills in the construction of basic stairs. Students will interpret floor plans and drawing elevations for job planning, and to layout and construct complex stair designs. Stair calculations will be adapted to determine the number of stairs, landing height, stair thread and riser dimensions. In addition to measuring skills, mathematical principles, stair and handrail fabrication and assembly, the installation techniques required for circular and u-shaped stair configurations will be covered. Open Entry/Open Exit.

Apprenticeship Carpentry 025D Advanced Print Reading

Unit(s): 2.0

Class Hours: 30 Lecture total, 10 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

In this course, students will analyze multi-view drawings to determine construction type, locate benchmark and building elements; review codes, references, and perform calculations for construction planning. Open Entry/Open Exit.



**Apprenticeship Carpentry 026A
Tilt-Up Panel Construction**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This class will cover layout techniques and building procedures for commercial structures using the tilt-up panel construction method. Various wall types, position, and sequence for raising panels will be discussed. Students will be able to explain the importance of layout methods in squaring panel formwork. A focus will be placed on identifying specific types of openings and on the location of finish floor and roof lines on prints. Open Entry/Open Exit.

**Apprenticeship Carpentry 026B
Wall Forming**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course covers the skills and procedures for forming reinforced concrete walls using single and double waler systems. Students will identify the characteristics and application of built-in-place, per-fabricated, and specialty forms. Practical exercises will prepare students for locating wall forming information on project plans, calculating layout dimensions, and for estimating material requirements. Basic wall panel forming and reinforcement methods, material preparation, and hardware installation are included in training. Open Entry/Open Exit.

**Apprenticeship Carpentry 026C
Gang Forms/Columns**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course presents the formwork types, applications and construction methods for gang and column forms using built and manufactured forming systems. Discussions will cover heavy timber gang forms and use of taper ties, bracing, and bulkhead tables. The course project will include gang and column formwork construction, assembly, and hardware using selected manufactured products. Related safety, mathematics and print reading will be covered in the training. Open Entry/Open Exit.

**Apprenticeship Carpentry 026D
Abutments**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course provides formwork construction skills for the abutment support structure used in most bridges and heavy highway projects. Students will identify abutment anatomy and will be instructed on footing layout, form detailing, and construction techniques used in the industry. Terminology, components, form materials, building code requirements and sequence of construction will be presented. Students will work collaboratively to complete an abutment formwork project including keyway, panel, head wall and wing wall construction. Open Entry/Open Exit.

**Apprenticeship Carpentry 027C
Beam and Deck Forming**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course will introduce the use of various woods, and patented forming systems for construction of concrete beams and decks. Students will identify formwork types and installation techniques including calculating materials and setting beam & deck forms. Metal beam forms and capitals will be highlighted. Additionally, layout and builders level skills will be used in this class. Open Entry/Open Exit.

**Apprenticeship Carpentry 027D
Stairs and Ramp Forming**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides related and supplemental instruction for apprentice carpenters in the areas of the various techniques to form stairs and ramp structures; related safety, mathematics, and blueprint reading. Open Entry/Open Exit.

**Apprenticeship Carpentry 028A
Bridge Construction**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course provides students with an overview of bridge types and the skills required to perform standard bridge construction tasks. Students will be able to describe the purpose and function of exterior and interior girders, edge forms, bulkheads and hinge forms. Bridge formwork project will include panel construction, assembly, and hardware installation tasks. Related safety, math and print reading will be covered in the training. Open Entry/Open Exit.

**Apprenticeship Carpentry 028C
Intermediate Commercial Framing**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course enhances basic wall framing theory, and wall construction techniques are applied at increased skill levels. A review of basic wall framing and floor plans used for job planning, design recognition, and materials lists is included. Students will layout and detail wall plates for locating basic wall components and door openings. Instruction will include measuring skills, mathematical principles, wall assembly and installation procedures, and detail how structural connections are made. Open Entry/Open Exit.

**Apprenticeship Carpentry 028E
Bridge Falsework**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice. Apprenticeship Carpentry 021A and 021B.

This course will focus on bridge falsework construction. The techniques for bent assemblies, base sub-assemblies, deck soffits and hardware installation will be presented. Falsework tasks will include rigging and alignment techniques. Related safety, math and print reading will be covered in the training. Open Entry/Open Exit.

**Apprenticeship Carpentry 029A
Rigging**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course presents both lifting theory and practical rigging methods and procedures. The design, characteristics and safety working load of lifting hardware will be discussed. Rigging attachment procedures, lifting equipment, limits of operation and communication practices will be covered. Upon successful completion, students will be issued United Brotherhood Of Carpenters (UBC) Rigging Qualification Cards. Open Entry/Open Exit.



Apprenticeship Carpentry 029AJ Rigging - Journeyworker

Unit(s): 2.0

Class Hours: 30 Lecture total, 10 Laboratory total.

Prerequisite: Active Carpenter Union Member.

This course presents both lifting theory and practical rigging methods and procedures. Rigging attachment procedures, lifting equipment, limits of operation and communication practices will be covered. Upon successful completion, a student will be issued United Brotherhood of Carpenters (UBC) Rigging Qualification Cards. Grade: Pass/No Pass.

Apprenticeship Carpentry 029BJ Rigging Qualification Studies - Journeyworker

Unit(s): 0.5

Class Hours: 8 Lecture total.

Prerequisite: Active Carpenter Union Member.

This course provides an overview of lifting theory and the practical rigging methods and procedures required to maintain industry credentials. Rigging standards, procedures and communication practices will be covered. Upon successful completion, a student will be issued United Brotherhood of Carpenters (UBC) Rigging Qualification Cards. Grade: Pass/No Pass.

Apprenticeship Carpentry 029C Solar Installer Level 1

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice. Apprenticeship Carpentry 021A and 021B.

This course will provide workers with an industry overview and outlook for photovoltaic (renewable) energy production. Key terms and concepts of photovoltaic system operations will include solar cell technology, photovoltaic (PV) array configuration, series and parallel circuits, testing equipment, inspection, balance of system components, mounting methods, and applicable codes. Practical training will cover site analysis, system orientation based on site location, safety concerns, utilization of construction tools and skills for rooftop and ground mount system installations. Upon successful completion, students will receive a United Brotherhood of Carpenters (UBC) Solar Installer Level 1 Qualification Card. Grade: Pass/No Pass.

Apprenticeship Carpentry 030A Standard First Aid

Unit(s): 0.2

Class Hours: 8 Laboratory total.

Prerequisite: Must be a state indentured apprentice.

Enables carpenters to cope with accidents and emergency situations with the goal of protecting and saving lives. American Red Cross certificate available upon successful completion. Grade: Pass/No Pass. Open Entry/Open Exit.

Apprenticeship Carpentry 030AJ First Aid/CPR - Journeyworker

Unit(s): 0.4

Class Hours: 6 Lecture total, 2 Laboratory total.

Prerequisite: Active Carpenter Union Member.

This course meets the certification requirements for first aid and cardiopulmonary resuscitation (CPR) emergency response necessary for the construction industry. Upon successful completion, students will be issued an American Red Cross First Aid/CPR Certification Card. Grade: Pass/No Pass.

Apprenticeship Carpentry 030BJ OSHA 10 Construction Safety - Journeyworker

Unit(s): 0.6

Class Hours: 10 Lecture total.

Prerequisite: Active Carpenter Union Member.

This course provides an overview of the safety awareness in the construction industry. Upon successful completion, a student will be issued an Occupational Safety and Health Administration (OSHA) 10 Certification and United Brotherhood of Carpenters (UBC) Qualification Card. Grade: Pass/No Pass.

Apprenticeship Carpentry 030CJ OSHA 30 Construction Safety - Journeyworker

Unit(s): 1.8

Class Hours: 30 Lecture total.

Prerequisite: Active Carpenter Union Member.

This course is intended to provide construction personnel with a designated level of safety related responsibility, specific training on a greater range of safety topics for hazard identification, avoidance, prevention and control measures. Upon successful completion, a student will be issued Occupational Safety and Health Administration (OSHA) 30 certification and United Brotherhood of Carpenters (UBC) qualification cards. Grade: Pass/No Pass.

Apprenticeship Carpentry 030DJ Construction Fall Protection - Journeyworker

Unit(s): 0.5

Class Hours: 8 Lecture total.

Prerequisite: Active Carpenter Union Member.

This course provides an overview fall protection for the construction industry. Fall hazard recognition, abatement, and personal protective equipment will be a focus of this training. Upon successful completion, students will be issued a United Brotherhood of Carpenters (UBC) Fall Protection Qualification Card. Grade: Pass/No Pass.

Apprenticeship Carpentry 033A Cabinet Millwork and Assembly

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course details cabinetry fabrication from design and function through the complete production process. An emphasis will be placed on print interpretation, job planning and proper construction sequence. Countertops and hardware styles and types will be discussed. Students will use the methods and procedures presented to build a typical base unit. Open Entry/Open Exit.

Apprenticeship Carpentry 033B Cabinet Installation

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This comprehensive course covers cabinet installation from establishing the design layout to attaching countertops. To enhance student's skill level an emphasis will be placed on print interpretation, job planning and proper installation sequence. Students will use the methods and procedures presented to install typical upper and lower cabinetry units and countertops. Open Entry/Open Exit.

Apprenticeship Carpentry 033C Show Case/Loose Store Fixtures

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course includes basic cabinetmaking construction techniques for the installation of commercial store fixtures. Students' skill level will benefit from an emphasis placed on measuring, leveling, hand and power tool use, and safety. Students will interpret prints and material bills for the store fixture components included in the course project. Open Entry/Open Exit.



Apprenticeship Carpentry 033D Molding and Trims

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course covers how moldings and trims are utilized to finish exterior and interior construction design features. Product styles, characteristics, applications, and installation methods are included in the discussions. The tools techniques for cutting, coping and installing various molding and trim types are presented and practiced throughout the training. Open Entry/Open Exit.

Apprenticeship Carpentry 034A Plastic Laminates

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course covers installation of plastic laminates including function and design. Suitable materials, styles, and textures will be identified. Students will review prints to determine laminate type and calculate quantities. Installation methods and techniques for drop edge and back splash together with cleaning and repair will be emphasized. A countertop will be designed and installed to specifications. Correct use of tools and other equipment will be stressed. Open Entry/Open Exit.

Apprenticeship Carpentry 034B Solid Surface and Stone Countertops

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course covers both basic and advanced assembly and installation techniques for solid surface, natural stone and manufactured materials. Various products, designs, materials, accessories, and safety considerations will be included. Students will use the procedures presented to fabricate countertops with backsplash, and create a design inlay. Open Entry/Open Exit.

Apprenticeship Carpentry 034C Stair Trim

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course covers how various trims are utilized to finish stair construction design features. Product styles, characteristics, applications, and installation methods are included in the discussions. The tools techniques for cutting and installing selected trim types are presented and practiced throughout the training. Open Entry/Open Exit.

Apprenticeship Carpentry 034D Doors and Door Hardware

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course covers the installation process for several types of security and exit door hardware. Discussion of electrical and card reader systems will be included. An emphasis will be placed on print interpretation, codes, door schedules, symbols, and hardware recognition. Students will use the methods and procedures presented to install selected door and hardware systems. Open Entry/Open Exit.

Apprenticeship Carpentry 035C Exit and Electrical Security Devices

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course will highlight the classification, types, models, codes, and uses for accident hazard exit ("panic") devices. A range of security products and door hardware used in the industry such as crossbars, latches, flush bolts, and kick plates will be discussed. Proper selection, installation and adjustment techniques for selected devices will be covered. Students will complete installation and adjustment of two types of exit devices. Open Entry/Open Exit.

Apprenticeship Carpentry 040AJ

Scaffold Erector, Welded Frame/Mobile Tower - Journeyworker

Unit(s): 0.6

Class Hours: 8 Lecture total, 8 Laboratory total.

Prerequisite: Active Carpenter Union Member.

This course will cover the basic techniques and procedures associated with the construction and use of frame and mobile tower scaffolds. Upon successful completion, students will be issued an United Brotherhood of Carpenters (UBC) Scaffold Qualification Card. Grade: Pass/No Pass.

Apprenticeship Carpentry 040BJ

Scaffold Erector, Qualification Studies - Journeyworker

Unit(s): 0.5

Class Hours: 8 Lecture total.

Prerequisite: Active Carpenter Union Member.

This course will cover the industry standards and regulations associated with various types of scaffolds and scaffold applications. Upon successful completion, students will be issued an United Brotherhood of Carpenters (UBC) Scaffold Qualification Card. Grade: Pass/No Pass.

Apprenticeship Carpentry 040CJ

Scaffold Erector, Standard 40 Hour - Journeyworker

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Active Carpenter Union Member.

This course will cover the basic techniques and procedures associated with frame, system, and tube and clamp scaffolds. Upon successful completion, a student will be issued a United Brotherhood of Carpenters (UBC) Scaffold Qualification Card. Grade: Pass/No Pass.

Apprenticeship Carpentry 040DJ

Scaffold Erector, Tube and Clamp - Journeyworker

Unit(s): 0.6

Class Hours: 8 Lecture total, 8 Laboratory total.

Prerequisite: Active Carpenter Union Member.

This course will cover the basic techniques and procedures associated with tube and clamp type scaffold components. Upon successful completion, students will be issued an United Brotherhood of Carpenters (UBC) Scaffold Qualification, Tube and Clamp Card. Grade: Pass/No Pass.

Apprenticeship Carpentry 040EJ

Scaffold Erector, Systems Scaffold - Journeyworker

Unit(s): 0.6

Class Hours: 8 Lecture total, 8 Laboratory total.

Prerequisite: Active Carpenter Union Member.

This course provides the required instruction in basic techniques and procedures associated with system scaffold components and focuses on terminology, component identification, construction practices, and safety considerations. Students will erect typical configurations to industry standards using system scaffold components. Upon successful completion, a student will be issued a United Brotherhood of Carpenters (UBC) Scaffold Qualification Card. Grade: Pass/No Pass. Open Entry/Open Exit.

**Apprenticeship Carpentry 041A****Powered Industrial Truck Operator - Rough Terrain**

Unit(s): 0.4

Class Hours: 6 Lecture total, 2 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course covers an overview for safe operation of rough terrain lift trucks for the construction industry, Code of Federal Regulations (CFR), and training requirements. Upon successful completion, students will be issued an United Brotherhood of Carpenters (UBC) Powered Industrial Truck Operator-Rough Terrain (RT) Qualification Card. Grade: Pass/No Pass. Open Entry/Open Exit.

Apprenticeship Carpentry 041AJ**Powered Industrial Truck Operator - Rough Terrain - Journeyworker**

Unit(s): 0.4

Class Hours: 6 Lecture total, 2 Laboratory total.

Prerequisite: Active Carpenter Union Member.

This course provides an overview of powered industrial lift truck design principles, controls, and lift operating functions. An emphasis will be placed on all the up-to-date industrial lift safety: specific operating limitations; accident prevention, worksite and equipment inspection, and maintenance criteria. Students will inspect equipment and demonstrate the safe operation of a typical rough terrain lift truck. Upon successful completion, students will be issued a valid United Brotherhood of Carpenters Powered Industrial Lift Truck Operator Qualification Card. Grade: Pass/No Pass.

Apprenticeship Carpentry 041B**Powered Industrial Truck Operator - Industrial Terrain**

Unit(s): 0.4

Class Hours: 6 Lecture total, 2 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course covers an overview for safe operation of industrial lift trucks for the construction industry, Code of Federal Regulations (CFR) regulations, and training requirements. Upon successful completion, a student will be issued an United Brotherhood of Carpenters (UBC) Powered Industrial Truck Operator-Industrial Truck (IT) Qualification Card. Grade: Pass/No Pass. Open Entry/Open Exit.

Apprenticeship Carpentry 041BJ**Powered Industrial Truck Operator - Industrial Terrain - Journeyworker**

Unit(s): 0.4

Class Hours: 6 Lecture total, 2 Laboratory total.

Prerequisite: Active Carpenter Union Member.

This course provides an overview of powered rough terrain lift truck design principles, controls, and lift operating functions. An emphasis will be placed on all the up-to-date industrial lift safety: specific operating limitations; accident prevention, worksite and equipment inspection, and maintenance criteria. Students will inspect equipment and demonstrate the safe operation of a typical rough terrain lift truck. Upon successful completion, students will be issued a valid United Brotherhood of Carpenters Powered Rough Terrain Lift Truck Operator Qualification Card. Grade: Pass/No Pass.

Apprenticeship Carpentry 041CJ**Aerial Lifts - Journeyworker**

Unit(s): 0.4

Class Hours: 6 Lecture total, 2 Laboratory total.

Prerequisite: Active Carpenter Union Member.

This course provides an overview safe operation of aerial lifts for the construction industry. Code of Federal Regulations (CFR) regulations and training requirements. Upon successful completion, a student will be issued an United Brotherhood of Carpenters (UBC) Aerial Lift Operator Qualification Cards. Grade: Pass/No Pass.

Apprenticeship Carpentry 061A**Acoustical Ceilings**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course provides an introduction to basic acoustical ceiling installation. Acoustical theory, engineering, and applicable building and seismic codes requirements will be covered. Students will install acoustical ceilings to industry standards using the proper techniques and procedures. Open Entry/Open Exit.

Apprenticeship Carpentry 061B**Advanced Acoustical Ceiling Layout**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course identifies the advanced layout methods used to complete complex acoustical system installations. Students will use the skills presented to complete selected multifaceted acoustical ceiling layout projects as part of this course. Open Entry/Open Exit.

Apprenticeship Carpentry 061C**Advanced Acoustical Ceiling Installation**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course identifies the advanced layout methods used to complete complex acoustical system installations. Students will use the tool and framing techniques presented to complete selected multifaceted acoustical ceiling layout projects. Open Entry/Open Exit.

Apprenticeship Carpentry 062**Standard Acoustical Grids**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course covers various grid patterns considered as standard for acoustical ceilings in the interior system construction industry. The methods and procedures used to form the patterns are the key focus of the course. Students will install several standard acoustical grid patterns to print specifications using the proper techniques and procedures. Open Entry/Open Exit.

Apprenticeship Carpentry 063**Suspended Ceilings**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides instruction covering the installation of suspended ceilings in various configurations and will include both radius and square wall drywall suspension methods. Students will complete selected suspended ceiling installations using the techniques presented. Open Entry/Open Exit.

Apprenticeship Carpentry 064**Acoustical Soffits**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides instruction covering the construction of acoustical soffits in various configurations and will include square and slant faced, tapered, concealed, drywall suspension and sloped soffits methods. Students will complete selected acoustical soffit installations using the techniques presented. Open Entry/Open Exit.



**Apprenticeship Carpentry 065
Prefab/Sound Panels**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course will focus on the technical knowledge and skills needed for the installation of prefabricated wall and ceiling panel systems. Students will use the proper techniques and manufacturers' guidelines to install various types of prefabricated wall and ceiling panels. Open Entry/Open Exit.

**Apprenticeship Carpentry 066
Concealed/Glue-Up/Staple-Up Systems**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course illustrates the design flexibility of concealed, semi-concealed ceilings and soffits using glue-up and staple-up systems. Students will employ the glue-up and staple-up techniques presented to install concealed grid ceiling system. Open Entry/Open Exit.

**Apprenticeship Carpentry 067
Designer and Specialty Trims**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course covers specialty skills needed to produce professionally finished edges for designer ceiling installations. Students will use the techniques presented to produce multiple ceiling edge contours using the compasso trim system. Open Entry/Open Exit.

**Apprenticeship Carpentry 068
Metal Pan and Security Systems**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course will focus on design, function and installation of metal pan and security systems incorporated into construction of suspended ceilings. Students will demonstrate the ability to installation these components to direct wire and indirect channel suspension ceiling grid systems. Open Entry/Open Exit.

**Apprenticeship Carpentry 071A
Orientation**

Unit(s): 2.0

Class Hours: 30 Lecture total, 10 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course provides an overview of the construction industry, safety, and green building awareness. Upon successful completion, students will receive Occupational Safety and Health Administration (OSHA) 10 Hour and Power Actuated Tool Certifications, and United Brotherhood of Carpenters (UBC) Fall Protection Qualification Card. Open Entry/Open Exit.

**Apprenticeship Carpentry 071B
Safety and Health Certifications**

Unit(s): 2.0

Class Hours: 30 Lecture total, 10 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course covers the safe and appropriate use of scaffolds, aerial lift and fork lift equipment, and emergency response procedures. Upon successful completion, students will be issued American Red Cross First Aid/Cardio-Pulmonary Resuscitation (CPR) Certifications, and United Brotherhood of Carpenters (UBC) Scaffold, Aerial Lift and Forklift Qualification Cards. Open Entry/Open Exit.

**Apprenticeship Carpentry 071C
Tool/Equipment Applications**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice. Apprenticeship Carpentry 071A and 071B.

This course promotes hand/power tool and equipment skill development for various construction applications. Scaffold building and aerial lift safety and operating procedures will also be covered. Upon successful completion, interior systems/drywall students will be issued United Brotherhood of Carpenters (UBC) Aerial Lift and Scaffold Erector-Welded Frame Qualification Cards. Open Entry/Open Exit.

**Apprenticeship Carpentry 072A
Basic Metal Framing**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides students with an overview of the use of metal framing materials in construction of building interiors. A comparison of metal framing and typical wood framing techniques will be presented. Open Entry/Open Exit.

**Apprenticeship Carpentry 072B
Basic Lathing**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course presents the basic framing and lathing methods used in the industry for exterior/interior installations. The course will focus on exterior waterproofing, lath, and trim installation procedures. Students will use the skills presented to complete an exterior lathing project as part of this course. Open Entry/Open Exit.

**Apprenticeship Carpentry 072C
Advanced Lathing**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice. Apprenticeship Carpentry 021A and 021B.

This course presents advanced methods and application techniques for lath and trim products used on exterior-interior metal framing. Open Entry/Open Exit.

**Apprenticeship Carpentry 073A
Framing Ceilings and Soffits**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course identifies the materials used and their application for various types of fire rated walls, ceilings and soffits. It presents methods and procedures used for layout and template development. Drywall and trim applications are discussed. The types of tools used and their associated safety, applied math and print reading fundamentals are reviewed. Students will use the skills presented to complete a ceiling and soffit project as part of this course. Open Entry/Open Exit.



Apprenticeship Carpentry 073B Framing Suspended Ceilings

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course identifies the materials used for various types of suspended ceilings and drywall grid systems. The principles of suspension layout, suspension methods, and attachment procedures will be presented. Advanced shapes such as domes and stepped soffits will be covered. The types of tools used and their associated safety, applied math and print reading fundamentals are reviewed. Students will use the skills presented to complete a suspended ceiling project as part of this course. Open Entry/Open Exit.

Apprenticeship Carpentry 073C Framing Curves and Arches

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course provides instruction in framing methods for curves and arches and their related structural limitations. It identifies the various wall and ceiling types and the layout principles, and materials used for each. Lath applications and trim are also discussed. Students will use the skills presented to complete a framing project that includes curves and arches. Open Entry/Open Exit.

Apprenticeship Carpentry 074A

Print Reading

Unit(s): 2.0

Class Hours: 30 Lecture total, 10 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course introduces basic visualization skills needed for reading and interpreting construction prints. Students will identify the various components of a typical drawing and highlight their significance. Views, elevations, and the role of specifications as they relate to prints will be discussed. Students will complete a basic ceiling layout using information from a typical print for a commercial project. Open Entry/Open Exit.

Apprenticeship Carpentry 074B

Advanced Print Reading

Unit(s): 2.0

Class Hours: 30 Lecture total, 10 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

In this course, students will analyze multi-view drawings to determine acoustical ceiling construction types, locate benchmark and building/wall elements; review codes, references, and perform calculations for construction/ceiling grid planning. Open Entry/Open Exit.

Apprenticeship Carpentry 074C

Air, Moisture and Thermal Barrier

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice. Apprenticeship Carpentry 071A and 071B.

This course will demonstrate that correctly installed air, moisture and thermal barrier systems increase building envelope energy efficiency. Building sealing products and installation techniques will be the main focus of hands-on exercises. Open Entry/Open Exit.

Apprenticeship Carpentry 075A Light Gage Welding AWS - A

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course covers light gage welding methods and techniques. American Welding Society (AWS) welding processes, symbols, materials and safety procedures will be presented. Students will practice setting up equipment and identifying the proper electrode position and speed. Instruction will include an explanation of typical metal frame welding practices. An emphasis on hands-on experience using 6013 electrodes will reinforce proper use of the welding procedures. Open Entry/Open Exit.

Apprenticeship Carpentry 075B

Light Gage Welding LAC

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course covers light gage welding methods and techniques. American Welding Society (AWS) welding processes, symbols, materials and safety procedures will be presented. An emphasis on hands-on experience using 6010 electrodes will reinforce proper use of required welding procedures, and ability to perform welding tasks used to complete the Los Angeles City (LAC) certification process. Open Entry/Open Exit.

Apprenticeship Carpentry 075C

Light Gage Welding AWS - B

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course covers light gage welding methods and techniques. American Welding Society (AWS) welding processes, symbols, materials and safety procedures will be presented. An emphasis on hands-on experience using 6013 electrodes will reinforce proper use of required welding procedures, and ability to perform welding tasks used to complete AWS certification process. Open Entry/Open Exit.

Apprenticeship Carpentry 075CJ

Welding Certification Studies - Journeyworker

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Active Carpenter Union Member.

This course is designed for students with prior welding experience that are preparing to obtain one or more American Welding Society (AWS) welding certificates. Welding certifications covered include AWS D1.1; AWS D1.3 Structural/Light Gage Welding Code, as well as specific alloy and specialty metal welding processes. Grade: Pass/No Pass.

Apprenticeship Carpentry 076A

Basic Hand Finishing

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course is designed to develop basic hand finishing skills using the correct tools and materials. The training will include terminology and description of finishing levels as well as hand tool manipulation techniques, material identification and selection criteria. Manufacturer's guidelines will highlight the environmental conditions for proper mixture preparation and use. Key discussions will draw attention to typical finish issues, causes, and solutions frequently employed. Tool techniques and application sequence and will be explained and demonstrated. The importance of mixture consistency, proper coating sequence will be stressed during level four hand finishing exercises. Open Entry/Open Exit.



Apprenticeship Carpentry 076B Automatic Finishing Tools

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course will advance the methods, applications and sequences of the bazooka, skim boxes, nail spotters and angle boxes. Students will be required to demonstrate the ability to tape in different situations and the ability to coat all field and butt joints. The levels of finishing and the various finish trims will be discussed. The operation of automatic taping and finishing machine tools including those newly introduced to the industry will be covered. Open Entry/Open Exit.

Apprenticeship Carpentry 077A Drywall Installation/Finish Trims

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course will introduce drywall handling methods, applications and recommended levels of drywall finish to achieve the desired aesthetics. An emphasis will be placed on trim attachment and finishing techniques. Various types of finish trim will be identified. Students must demonstrate proficiency in the proper use of automatic taping tools. Open Entry/Open Exit.

Apprenticeship Carpentry 077B Advanced Hand Finishing

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course will focus on advanced methods and applications using hand tool techniques. The proper sequence of operation, phases and materials to be used in order to produce a higher level finished product to industry standards. Curved and radius wall characteristics for finish levels will be discussed. The course will cover wall frame components, materials used, surface preparation, and application methods. Students will complete a project to a Level Five standard. Open Entry/Open Exit.

Apprenticeship Carpentry 077C Advanced Automatic Finishing Tools

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course will advance the methods, applications and sequences of the bazooka, skim boxes, nail spotters and angle boxes. Students will be required to demonstrate the ability to tape in different situations and the ability to coat all field and butt joints. The levels of finishing and the various finish trims will be discussed. The operation of automatic taping and finishing machine tools including those newly introduced to the industry will be covered. Open Entry/Open Exit.

Apprenticeship Carpentry 078B Advanced Metal Framing

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course will begin with a quick review of basic metal framing followed by detailed procedures for framing curved, serpentine, and elliptical non load bearing partitions. Using standard light gage components and other materials, students will learn advanced techniques to expedite work processes. Open Entry/Open Exit.

Apprenticeship Carpentry 078C Wet Wall Finishes

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course presents industry methods, mediums, and typical application of wet wall finishes. The training will include terminology and description of industry standard finishing levels; application tool types and techniques, material identification and selection. Manufacturer's guidelines will highlight the environmental conditions for proper mixture preparation and use. Key discussions will draw attention to typical finish issues, causes for defects, and solutions frequently employed, and emphasize the selection and use of low volatile organic compounds (VOC) products. The importance of mixture consistency, proper coating sequence will be stressed during wet wall finishing exercises. Open Entry/Open Exit.

Apprenticeship Carpentry 078D Ceiling and Soffit Finishing

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course is designed to develop an advanced level of finishing skill for applications with architecturally detailed ceilings and soffits. Students will be required to determine type and quantity of materials for various designs and differentiate between levels of finish. Guided practice with a combination of hand and automatic tool techniques will promote manipulative ability required for a successful result. A variety of finish trims will be integrated into each method of finish. Open Entry/Open Exit.

Apprenticeship Carpentry 079A Drywall/Acoustical Ceilings

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course identifies the materials and methods used for acoustical ceilings combined with drywall installation. Seismic codes, materials, and requirements are also reviewed. Green building rating systems will be applied to selected acoustical and drywall materials. Installation for various grid systems will be discussed. Students will use the skills learned to complete a drywall-acoustical ceiling project. Open Entry/Open Exit.

Apprenticeship Carpentry 079C Drywall Applications

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course provides needed commercial and residential skills to properly handle and install drywall used in specialized applications. Productivity techniques will be discussed and practiced under job-site conditions. Wall framing and drywall finishing methods will be incorporated into the hands-on activity. Open Entry/Open Exit.

Apprenticeship Carpentry 082B Firestopping Procedures

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course covers various firestop/fireproofing systems and methods used as fire protection and fire control. Key discussions will highlight applicable fire codes and industry standards for testing firestop/fireproof methods. Manufacturer's guidelines will identify application tool anatomy, instruction for job preparation, loading instructions, operating procedures, maintenance and care of equipment. Basic descriptions of penetration types and the materials used, including non-combustibles and B-Expands, will be covered. Students will apply and test firestop/fireproofing material in a controlled environment. Open Entry/Open Exit.



Apprenticeship Carpentry 082C Decorative Trims and Textures

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course provides advanced hand and automatic tool finishing techniques used to apply decorative trims and special surface textures. Training includes product information for metal, paper, plastics and art beads. Special attention will be given to coating and sanding sequence of field and butt joints for selected surface textures. Open Entry/Open Exit.

Apprenticeship Carpentry 083 Door/Door Frames

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

An introduction to the doors and door frames used in the interior systems industry. The course discussions will incorporate applicable regulations governing door openings and door selection. Hardware, controlling and locking devices, and door layout and installation techniques will be included. Basic math and print reading will be covered as will tool-related safety concerns. Students will use the skills presented to complete a selected door and door frame installation project as part of this course. Open Entry/Open Exit.

Apprenticeship Carpentry 083C Doors/Door Frame

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice. Apprenticeship Carpentry 021A and 021B.

This course covers the installation process from constructing rough openings to hanging and adjusting doors. An emphasis will be placed on print interpretation, door schedules, symbols and hardware recognition. Students will use the methods and procedures presented to install selected frames and doors for wood framing applications. Open Entry/Open Exit.

Apprenticeship Carpentry 085 Supervisory Training

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course covers the supervisor's role and crew leadership skills required for professional development in the construction industry. Typical work processes, communication methods, project considerations, motivational concepts and problem solving techniques will be presented. When exercised these skills lead to efficient and effective management of projects. Various project scenarios will be used to conduct classroom exercises. Open Entry/Open Exit.

Apprenticeship Carpentry 086A Exterior Insulation Finish Systems (EIFS)

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course is an introduction to exterior insulation finish systems including terminology, definitions, specifications, and properties. It will deal with reinforcing mesh installation and the application of insulation board. Application methods and techniques for primers and finishes will be presented. Students will use the skills presented to complete an EIFS installation project as part of this course. Open Entry/Open Exit.

Apprenticeship Carpentry 089 Freeform Lathing

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course provides a comprehensive study of the theory and techniques used for the development of freeform lathing projects. This course will enable students to interpret gridline drawings; layout and build lath cage work and apply the appropriate lath(s) to achieve the desired or designed form or structure. Open Entry/Open Exit.

Apprenticeship Carpentry 090 Residential Steel Stud Framing

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction required for interior systems apprentices in the new technology of cold-formed light gage steel framing for the residential market. Methods of constructing a structural floor, wall and truss system. Open Entry/Open Exit.

Apprenticeship Carpentry 090J Mine Safety and Health Administration - New Miner - Journeyworker

Unit(s): 1.5

Class Hours: 24 Lecture total.

Prerequisite: Active Carpenter Union Member.

This course discusses miner's statutory rights, site-specific hazard recognition, health risks, and emergency response plans. Upon successful completion, students will be issued the Mine Safety and Health Administration (MSHA) 5000-23 Certificate of Training. Grade: Pass/No Pass.

Apprenticeship Carpentry 091J Mine Safety and Health Administration - New Miner Qualification Studies - Journeyworker

Unit(s): 0.5

Class Hours: 8 Lecture total.

Prerequisite: Active Carpenter Union Member.

This course provides a review, and updates information on miners' statutory rights, site-specific hazard recognition, health risks, and emergency response plans. Mine Safety and Health Administration (MSHA) 5000-23 Certificate of Training. Grade: Pass/No Pass.

Apprenticeship Carpentry 092J Safety and Health Certifications - Journeyworker

Unit(s): 2.0

Class Hours: 30 Lecture total, 10 Laboratory total.

Prerequisite: Active Carpenter Union Member.

This course covers the safe and appropriate use of scaffolds, aerial lift equipment, and emergency response procedures. Successful students will be issued United Brotherhood of Carpenters (UBC) Scaffold Erector, Frame and Mobile Tower, Construction Fall Protection, and Aerial Lift Operator Qualifications. First Aid and CPR Certification will be issued upon successful completion of the American Red Cross training provided. Grade: Pass/No Pass.

Apprenticeship Carpentry 093J Infection Control Risk Assessment (ICRA) Best Practices in Health- Care Construction - Journeyworker

Unit(s): 1.2

Class Hours: 16 Lecture total, 8 Laboratory total.

Prerequisite: Active Carpenter Union Member.

This course describes cross contamination concerns for construction in medical environments and facilities. Training includes hazardous material recognition, work area isolation methods, and heating, ventilation, and air conditioning (HVAC) sealing procedures. Upon successful completion, a student will be issued a United Brotherhood of Carpenters (UBC) Best Practices in Health-Care Construction Qualification Card. Grade: Pass/No Pass.



**Apprenticeship Carpentry 094J
Confined Space - Journeyworker**
Unit(s): 0.8

Class Hours: 12 Lecture total, 4 Laboratory total.
Prerequisite: Active Carpenter Union Member.

This course covers both CAL-OSHA and Federal Occupational Safety and Health Administration (OSHA) regulation for safe access, entry and monitoring for confined space work. Upon successful completion, a student will be issued United Brotherhood of Carpenters (UBC) Confined Space Qualification Card. Grade: Pass/No Pass.

**Apprenticeship Carpentry 095
Water Treatment Facilities**
Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.
Prerequisite: Must be a state-indentured apprentice. Apprenticeship Carpentry 021A and 021B.

This course provides instruction in the detailing, layout and construction of concrete formwork and waterstop used in water treatment facilities. Open Entry/Open Exit.

**Apprenticeship Carpentry 095J
Water Treatment Facilities - Journeyworker**
Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.
Prerequisite: Active Carpenter Union Member.

This course provides instruction for detailing, layout and construction of concrete formwork and waterstop used in water treatment facilities. Grade: Pass/No Pass.

**APPRENTICESHIP CARPENTRY PILE DRIVER
(ACPD)**

Apprenticeship Carpentry-Pile Driver

The Associate of Science degree and Certificate of Achievement in Apprenticeship Carpentry Pile Driver are designed to provide the required related and supplemental classroom instruction in the technical skills and knowledge required in the trade. Pile drivers work with pile-driving rigs--those big machines that look like cranes, but shake the ground as they drive metal, concrete or wood piling into the earth during the early stages of construction. Usually, pile drivers are the first workers at the construction site. They drive metal sheet piling to hold back the dirt during excavations. They drive concrete and metal piling as part of the foundation system upon which skyscrapers are built, and they drive wood and concrete piling to hold up docks, wharfs and bridges. In some cases they work on off-shore oil rigs and as commercial divers involved in underwater construction. Pile drivers are also required to install heavy timbers and weld or cut large metal beams. Successful completion may result in journeyworker status. Interested apprentices should contact the Carpentry Apprenticeship Committee and the Apprenticeship Office at Santiago Canyon College.

**Associate of Science
Pile Driver (31588)**

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Be eligible to work as a Pile Driver journeyworker.
- Continue their college education, using the units earned.

Major requirements*	Units
Apprenticeship Carpentry Pile Driver 021, Orientation	2
Apprenticeship Carpentry Pile Driver 022, Safety and Health Certifications	2
Apprenticeship Carpentry Pile Driver 023, Tool/Equipment Applications	1.5
Apprenticeship Carpentry Pile Driver 024A, Piles and Hammers A	1.5
Apprenticeship Carpentry Pile Driver 024B, Piles and Hammers B	1.5
Apprenticeship Carpentry Pile Driver 025A, Pile Caps and Columns A	1.5
Apprenticeship Carpentry Pile Driver 025B, Pile Caps and Columns B	1.5
Apprenticeship Carpentry Pile Driver 027A, Abutment A	1.5
Apprenticeship Carpentry Pile Driver 027B, Abutment B	1.5
Apprenticeship Carpentry Pile Driver 026A, Falsework A	1.5
Apprenticeship Carpentry Pile Driver 026B, Falsework B	1.5
Apprenticeship Carpentry Pile Driver 028A, Bridge and Deck Forms A	1.5
Select four (4) courses from the following:	6-7.5
Apprenticeship Carpentry Pile Driver 028B, Bridge and Deck Forms B (1.5)	
Apprenticeship Carpentry Pile Driver 029A, Structural Welding-AWS A (1.5)	
Apprenticeship Carpentry Pile Driver 029B, Structural Welding-AWS B (1.5)	
Apprenticeship Carpentry Pile Driver 030, Print Reading (2)	
Apprenticeship Carpentry Pile Driver 031A, Welding Fabrication A (1.5)	
Apprenticeship Carpentry Pile Driver 031B, Welding Fabrication B (1.5)	
Apprenticeship Carpentry 021C, Basic Wall Framing (1.5)	
Apprenticeship Carpentry 024D, Transit Level/Laser (2)	
Apprenticeship Carpentry 027D, Stairs and Ramp Forming (1.5)	
Apprenticeship Carpentry 029A, Rigging (1.5)	
Apprenticeship Millwright 026, Cutting and Burning (1.5)	

TOTAL 25-26

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Certificate of Achievement Pile Driver (31589)

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Be eligible to work as a Pile Driver journeyworker.
- Continue their college education, using the units earned.

Certificate requirements	Units
Apprenticeship Carpentry Pile Driver 021, Orientation	2
Apprenticeship Carpentry Pile Driver 022, Safety and Health Certifications	2
Apprenticeship Carpentry Pile Driver 023, Tool/Equipment Applications	1.5
Apprenticeship Carpentry Pile Driver 024A, Piles and Hammers A	1.5
Apprenticeship Carpentry Pile Driver 024B, Piles and Hammers B	1.5
Apprenticeship Carpentry Pile Driver 025A, Pile Caps and Columns A	1.5
Apprenticeship Carpentry Pile Driver 025B, Pile Caps and Columns B	1.5
Apprenticeship Carpentry Pile Driver 027A, Abutment A	1.5
Apprenticeship Carpentry Pile Driver 027B, Abutment B	1.5
Apprenticeship Carpentry Pile Driver 026A, Falsework A	1.5
Apprenticeship Carpentry Pile Driver 026B, Falsework B	1.5
Apprenticeship Carpentry Pile Driver 028A, Bridge and Deck Forms A	1.5
Select four (4) courses from the following:	6-7.5
Apprenticeship Carpentry Pile Driver 028B, Bridge and Deck Forms B (1.5)	
Apprenticeship Carpentry Pile Driver 029A, Structural Welding-AWS A (1.5)	
Apprenticeship Carpentry Pile Driver 029B, Structural Welding-AWS B (1.5)	
Apprenticeship Carpentry Pile Driver 030, Print Reading (2)	
Apprenticeship Carpentry Pile Driver 031A, Welding Fabrication A (1.5)	
Apprenticeship Carpentry Pile Driver 031B, Welding Fabrication B (1.5)	
Apprenticeship Carpentry 021C, Basic Wall Framing (1.5)	
Apprenticeship Carpentry 024D, Transit Level/Laser (2)	
Apprenticeship Carpentry 027D, Stairs and Ramp Forming (1.5)	
Apprenticeship Carpentry 029A, Rigging (1.5)	
Apprenticeship Millwright 026, Cutting and Burning (1.5)	
TOTAL	25-26

Courses

Apprenticeship Carpentry Pile Driver 021 Orientation

Unit(s): 2.0

Class Hours: 30 Lecture total, 10 Laboratory total.

Prerequisite: Must be a State-indentured Pile Driver Union Apprentice.

This course examines fundamental trade skills, employee-employer roles and responsibilities, and safe work practices needed for entry level performance for pile drivers in the construction industry. While an emphasis will be placed on attaining standard industry safety credentials, the course is designed to provide students with practical experience using construction terminology, math operations and basic measuring techniques, and tool identification and use in preparation for the next level of training. Safety will cover OSHA training for jobsite hazard recognition, accident prevention, and safe tool and equipment operation. Open Entry/Open Exit.

Apprenticeship Carpentry Pile Driver 022 Safety and Health Certifications

Unit(s): 2.0

Class Hours: 30 Lecture total, 10 Laboratory total.

Prerequisite: Must be a State-indentured Pile Driver Union Apprentice. Apprenticeship Carpentry Pile Driver 021.

This course is designed to increase the pile driver students' awareness of construction hazard communication systems, proper tool/equipment operation and will emphasize the importance of the individual responsibility for workplace safety and health. The students will discern that the construction environment has a higher potential for injuries and accidents than most workplaces and therefore requires the ability to assess danger, employ prevention measures, and take appropriate action in emergencies. This training will expose students to various health emergencies scenarios, and provide students with ample opportunities to practice the appropriate CPR and first aid response. Because many injuries are the result of improper tool and equipment use, students will be trained on how to correctly select, inspect, use, and operate fall protection systems, tools, and powered lift truck equipment. Open Entry/Open Exit.

Apprenticeship Carpentry Pile Driver 023 Tool/Equipment Applications

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a State-indentured Pile Driver Union apprentice. Apprenticeship Carpentry Pile Driver 021 and 022.

This course promotes hand/power tool and equipment skill development for various construction applications. Scaffold building and aerial lift safety and operating procedures will also be covered. Upon successful completion, students will be issued United Brotherhood of Carpenters (UBC) Aerial Lift and Scaffold Erector-Welded Frame Qualification Cards. Open Entry/Open Exit.

Apprenticeship Carpentry Pile Driver 024A Piles and Hammers A

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a State-indentured Pile Driver Union Apprentice. Apprenticeship Carpentry Pile Driver 021 and 022.

This course provides an overview of the types of piles used in construction as load bearing support for commercial buildings, bridges and piers when ground stratum is insufficient in strength. The rigging methods, driving techniques, and pile hammers utilized in the installation process will be presented. Students will use the proper procedures to install a lap-joint wood sheet pile system during this part of training. Open Entry/Open Exit.

Apprenticeship Carpentry Pile Driver 024B Piles and Hammers B

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a State-indentured Pile Driver Union Apprentice. Apprenticeship Carpentry Pile Driver 021 and 022.

This course provides an overview of the types of piles used in construction as load bearing support for commercial buildings, bridges and piers when ground stratum is insufficient in strength. The rigging methods, driving techniques, and pile hammers utilized in the installation process will be presented. Students will use the proper procedures to install a tongue and groove wood sheet pile system during this part of training. Open Entry/Open Exit.



**Apprenticeship Carpentry Pile Driver 025A
Pile Caps and Columns A**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a State-indentured Pile Driver Union Apprentice. Apprenticeship Carpentry Pile Driver 021 and 022.

This course describes the purpose and function of pile caps and columns in the bridge anatomy. Structural and loading considerations will be explained. Formwork sequence of construction for pile caps and various column types will be discussed. Students will focus on the construction and placement of columns/piers during this part of training. Related safety, math and print reading will also be covered. Open Entry/Open Exit.

**Apprenticeship Carpentry Pile Driver 025B
Pile Caps and Columns B**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a State-indentured Pile Driver Union Apprentice. Apprenticeship Carpentry Pile Driver 021 and 022.

This course describes the purpose and function of pile caps and columns in the bridge anatomy. Structural and loading considerations will be explained. Formwork sequence of construction for pile caps and various column types will be discussed. Students will focus on the construction and placement of pile caps during this part of training. Related safety, math and print reading will also be covered. Open Entry/Open Exit.

**Apprenticeship Carpentry Pile Driver 026A
Falsework A**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a State-indentured Pile Driver Union Apprentice. Apprenticeship Carpentry Pile Driver 021 and 022.

As part one of two courses, training will focus on bridge falsework construction. The techniques for bent assemblies, base sub-assemblies, deck soffits and hardware installation will be presented. The procedures presented will include timber construction methods and alignment techniques to install and level base and bent assemblies. Students will develop skills using sand jacks, transit levels and rigging procedures to set corbels, beams and posts. Related safety, math and print reading will be covered in the training. Grade: Pass/No Pass. Open Entry/Open Exit.

**Apprenticeship Carpentry Pile Driver 026B
Falsework B**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a State-indentured Pile Driver Union Apprentice. Apprenticeship Carpentry Pile Driver 021 and 022.

As part two, this course continues the focus on box girder bridge falsework construction. The techniques for bent assemblies, base sub-assemblies, deck soffits and hardware installation will be reviewed. During this part of the training procedures will include setting and installation of deck soffit assemblies. Students will develop skills using layout and rigging procedures to set and secure cap beams, stringers and joists supports. Related safety, math and print reading will be covered in the training. Open Entry/Open Exit.

**Apprenticeship Carpentry Pile Driver 027A
Abutment A**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a State-indentured Pile Driver Union Apprentice. Apprenticeship Carpentry Pile Driver 021 and 022.

This course provides students with the skills needed to layout abutment formwork and construction of footings to industry standards. A close look at assembly components will describe key terms and abutment anatomy. The importance of earth strata in the construction of footings, piers and retaining walls will be covered. The techniques for laying out keyway centerline, and footing formwork construction will be the main focus during this part of abutment training. Open Entry/Open Exit.

**Apprenticeship Carpentry Pile Driver 027B
Abutment B**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a State-indentured Pile Driver Union Apprentice. Apprenticeship Carpentry Pile Driver 021 and 022.

This course provides students with the skills needed to layout, and to construct abutment wall panel formwork to industry standards. A close look at assembly components will describe key terms and abutment anatomy. The importance of earth strata in the construction of footings, piers and retaining walls will be covered. The techniques for layout, and keyway, wing/head wall panel formwork construction will be the main focus during this part of abutment training. Open Entry/Open Exit.

**Apprenticeship Carpentry Pile Driver 028A
Bridge and Deck Forms A**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a State-indentured Pile Driver Union Apprentice. Apprenticeship Carpentry Pile Driver 021 and 022.

This course provides students with an overview of basic bridge and deck construction. Descriptions for exterior and interior girders; edge forms; bulkheads; hinge and deck forms will be presented. Bridge and deck formwork project will include bridge panel construction, assembly, and hardware attachment tasks. Related safety, math and print reading will be covered in the training. Open Entry/Open Exit.

**Apprenticeship Carpentry Pile Driver 028B
Bridge and Deck Forms B**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a State-indentured Pile Driver Union Apprentice. Apprenticeship Carpentry Pile Driver 021 and 022.

This course provides students with an overview of basic bridge and deck construction. Descriptions for exterior and interior girders; edge forms; bulkheads; hinge and deck forms will be presented. Bridge and deck formwork project will include bridge panel construction, assembly, and hardware attachment tasks. Related safety, math and print reading will be covered in the training. Open Entry/Open Exit.



Apprenticeship Carpentry Pile Driver 029A Structural Welding-AWS A

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a State-indentured Pile Driver Union Apprentice. Apprenticeship Carpentry Pile Driver 021 and 022.

This course is designed to be compliant with American Welding Society (AWS) D1.1 code requirements and provide workers with industry recognized structural welding credentials. A careful examination of the applicable codes will include terminology, shielded metal arc welding processes (SMAW), equipment and safety requirement, electrode identification and applications, welding positions and deposits. Practical experience will include symbol identification, print interpretation, code citation, safe equipment set-up and operation, and recognition/remediation of welding flaws. This course will focus on the written examination and production of practical test plates required for AWS D1.1 certification. Open Entry/Open Exit.

Apprenticeship Carpentry Pile Driver 029B Structural Welding-AWS B

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a State-indentured Pile Driver Union Apprentice. Apprenticeship Carpentry Pile Driver 021 and 022.

This course provides practical experience for structural welding skills used in commercial and industrial construction. Instruction will include a review of welding terminology, welding processes, welding equipment and safety requirements. Key discussions will be used to identify electrode characteristics and metal inert gas/tungsten inert gas (MIG/TIG) welding applications. Practical experience will include safety procedures, proper equipment set-up and operation, electrode selection, fillet and groove weld formation in three positions, and recognition/remediation of welding flaws. This course will focus on developing the manipulative ability required for producing test plates acceptable for AWS D1.1 certification. Open Entry/Open Exit.

Apprenticeship Carpentry Pile Driver 030 Print Reading

Unit(s): 2.0

Class Hours: 30 Lecture total, 10 Laboratory total.

Prerequisite: Must be a State-indentured Pile Driver Union Apprentice. Apprenticeship Carpentry Pile Driver 021 and 022.

This course introduces print reading skill as a basic communication tool of the trades. Material covered will focus on developing the students ability to interpret two dimensional views in such a way to convey the shape and characteristics of construction elements, and provide an overview of the scope of the project. Students will be able to recognize standard drawing methods, pictorial views, and how to read visual and verbal communication cues. Student will develop skills through a series of exercises including identifying parts of drawings, locating building, pier, and heavy highway features, calculating dimensions, and using views to determine construction methods. Open Entry/Open Exit.

Apprenticeship Carpentry Pile Driver 031A Welding Fabrication A

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a State-indentured Pile Driver Union Apprentice. Apprenticeship Carpentry Pile Driver 021 and 022.

This course provides an introduction to fabrication skills using oxygen/acetylene torch and welding equipment. A review of torch cutting principles will cover parts identification, gas characteristics, torch accessories and tips, safe operating and inspection criteria, and manufacturer's guidelines for use and care. Instruction will include inspection, torch set-up, criteria for interchanging of cutting tips and attachments, and identification of applicable symbols and codes. An emphasis will be placed on interpreting fabrication drawings, cutting stock materials, and torch heating and welding of parts. The importance of fire and shop safety, reading and monitoring of gages, and the importance of following project instructions will be stressed during cutting/welding fabrication exercises. Open Entry/Open Exit.

Apprenticeship Carpentry Pile Driver 031B Welding Fabrication B

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a State-indentured Pile Driver Union Apprentice. Apprenticeship Carpentry Pile Driver 021 and 022.

This course provides an introduction to fabrication skills using oxygen/acetylene torch and arc welding equipment. A review of arc welding principles will cover equipment parts identification, gas characteristics, arc welding accessories and electrodes, safe operating and inspection criteria, and manufacturer's guidelines for use and care of machinery. Instruction will include inspection, torch set-up, criteria for welding machine settings, applications for electrodes use, and identification of applicable symbols and codes. An emphasis will be placed on interpreting fabrication drawings, cutting stock materials, and torch heating and welding of parts. The importance of fire and shop safety, reading and monitoring of equipment gages and settings, and following project instructions will be stressed during welding fabrication exercises. Open Entry/Open Exit.



APPRENTICESHIP CARPENTRY PLASTERER (ACPL)

Courses

Apprenticeship Carpentry Plasterer 023 Tool/Equipment Applications

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured Plasterer apprentice. Apprenticeship Carpentry 071A and 071B.

This course promotes hand/power tool and equipment skill development for various interior systems construction applications. Aerial lift safety and operating procedures, and scaffold building will also be covered. Upon successful completion, students will be issued United Brotherhood of Carpenters (UBC) Aerial Lift and Scaffold Erector-Welded Frame Qualification Cards. Open Entry/Open Exit.

Apprenticeship Carpentry Plasterer 025 Basic Plastering

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured Plasterer apprentice.

This course covers common terms, safety procedures, building codes, and basic plastering production practices. Students will compare and use lath and plastering products for installation projects. Finish levels and hand tool manipulation will be covered with an emphasis on proper hawk and trowel techniques. Open Entry/Open Exit.

Apprenticeship Carpentry Plasterer 026 Exterior Plastering

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured Plasterer apprentice.

This course is designed to provide the students with the methods, procedures and practices used in Exterior Plastering. Special attention will be given to Portland Cement Plaster. Mixing and proportions, curing rates and quality workmanship will be included. Students will enhance their plastering application and tool manipulation skills with guided practice in the scratch coat, brown coat and a variety of finish coats. Training will conclude with inspection criteria for evaluating coat levels. Open Entry/Open Exit.

Apprenticeship Carpentry Plasterer 027 Dot and Screed Techniques

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured Plasterer apprentice.

This course is designed to teach the apprentice the importance of plumb and square projects. The students will use 3-4-5 or center line methods to square the project, establish control lines and wall finish lines. The plumbing of the project will be learned through the dotting and screeding portion of instruction. The student will brown up and finish a project using methods of application previously covered. Open Entry/Open Exit.

Apprenticeship Carpentry Plasterer 028 Interior Plastering

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured Plasterer apprentice.

This course is designed to introduce the student to modern gypsum interior plastering. They will learn the most widely used systems today. Proper methods of application, proper proportioning and mixing, and good workmanship will be stressed in this course. Open Entry/Open Exit.

Apprenticeship Carpentry Plasterer 029 Tender and Plastering Equipment

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured Plasterer apprentice.

This course covers the terminology, components and operating procedures for plastering equipment and machinery. Machine maintenance, safety, troubleshooting procedures, limits of operation and communication practices will be covered. Students will inspect and properly set up and clean a plastering pump. Open Entry/Open Exit.

Apprenticeship Carpentry Plasterer 030 Exterior Insulation Finish Systems (EIFS)

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured Plasterer apprentice.

This course will teach the basic working knowledge and technical skills needed to successfully install Exterior Insulation and Finish Systems (EIFS) to meet industry specifications and standards. Introduction to the proper usage of products and materials will be discussed and used. Open Entry/Open Exit.

Apprenticeship Carpentry Plasterer 031 Ornamental Plastering

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured Plasterer apprentice.

This course provides practical experience using applied geometry for plastering ornamental designs. Students will use the plastering skills presented to create molds and complete an ornamental installation to print specifications. Open Entry/Open Exit.

Apprenticeship Carpentry Plasterer 032 Plastering Equipment Application

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured Plasterer apprentice.

This course identifies the materials, application methods and techniques for operating a plaster pump. Students will complete a three-coat work application to industry standards. An emphasis will be placed on proper pump set-up, washout and maintenance. Open Entry/Open Exit.

Apprenticeship Carpentry Plasterer 033 Finish Applications

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured Plasterer apprentice.

This course covers the coating techniques for various types of finishing materials used in the plastering industry. Students will review construction drawings and specifications to identify finish materials and surface placement. Instruction will include mixing proportions, consistency, additives, and application procedures. The techniques for cement based, acrylic, and specialty materials will be a focus of the class. Students will coat multiple surfaces using the correct material and finishes detailed on project prints. Open Entry/Open Exit.



Apprenticeship Carpentry Plasterer 034 Theme Plastering

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured Plasterer apprentice.

This course is designed to encourage development of artistic skills and the ability to plan and execute the plastered imitation of natural rock formations. Students will study irregular surfaces, cracks, and color variations of real rock formations to aid the creative process. Students will employ specialty tooling and material techniques to replicate live like rock features. Painting, highlighting, and carving skills will be explored and utilized to complete assignments. Open Entry/Open Exit.

APPRENTICESHIP COSMETOLOGY (ACS)

Division of Business and Career Technical Education

Dean: Von Lawson

Apprenticeship Cosmetology

The Certificate of Achievement in Apprenticeship Cosmetology prepares students to obtain their license. The program is designed to offer the required related and supplemental classroom instruction as outlined by the apprenticeship agreement provided by the Division of Apprenticeship Standards and the State Board of Barbering and Cosmetology. All students must be indentured by the State of California. Interested apprentices should contact the Apprenticeship Office at Santiago Canyon College and the Orange County Barber and Cosmetology Joint Apprenticeship Committee.

Certificate of Achievement Cosmetology (11991)

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Begin a career as a licensed cosmetologist.
- Have a basis for further college education.

Certificate requirements	Units
Apprenticeship Cosmetology 035, Cosmetology Apprentice	14
TOTAL	14

Courses

Apprenticeship Cosmetology 035 Cosmetology Apprentice

Unit(s): 0.5-14.0

Class Hours: 8-224 Lecture total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction required for cosmetology apprentices leading to a cosmetology license. 0.5 unit earned for each 8 hours of successfully completed coursework. Grade: Pass/No Pass. Open Entry/Open Exit.



APPRENTICESHIP ELECTRICITY (AEL)

Division of Business and Career Technical Education

Dean: Von Lawson

Apprenticeship Electricity-Industrial

The Associate of Science degree and Certificate of Achievement in Apprenticeship Electricity Industrial provide the required related and supplemental instruction for state-indentured electrical inside wiremen apprentices. They install conduit, electrical wiring, fixtures and electrical apparatus inside commercial buildings and in a multitude of industrial settings. They use many different kinds of tools, ranging from simple one- and two-hand tools to power-assisted tools. Interested apprentices should contact the Orange County Electrical Apprenticeship Training Committee and the Apprenticeship Office at Santiago Canyon College. Successful completion may result in journeyworker status. Meets the state requirements as an electrician trainee program.

Associate of Science Industrial (11985)

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Begin a career as a journeyworker electrician.
- Have a basis for further college education.

Major requirements*	Units
Apprenticeship Electrician 051, Inside Wireman 1	4.5
Apprenticeship Electrician 052, Inside Wireman 2	4.5
Apprenticeship Electrician 053, Inside Wireman 3	4.5
Apprenticeship Electrician 054, Inside Wireman 4	4.5
Apprenticeship Electrician 055, Inside Wireman 5	4.5
Apprenticeship Electrician 056, Inside Wireman 6	4.5
Apprenticeship Electrician 057, Inside Wireman 7	4.5
Apprenticeship Electrician 058, Inside Wireman 8	4.5
Apprenticeship Electrician 059, Inside Wireman 9	4.5
Apprenticeship Electrician 060, Inside Wireman 10	4.5
Apprenticeship Electrician 061, Electrical Safety and First Aid	1.5
TOTAL	46.5

Certificate of Achievement Industrial (21661)

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Begin a career as a journeyworker electrician.
- Have a basis for further college education.

Certificate requirements	Units
Apprenticeship Electrician 051, Inside Wireman 1	4.5
Apprenticeship Electrician 052, Inside Wireman 2	4.5
Apprenticeship Electrician 053, Inside Wireman 3	4.5
Apprenticeship Electrician 054, Inside Wireman 4	4.5
Apprenticeship Electrician 055, Inside Wireman 5	4.5
Apprenticeship Electrician 056, Inside Wireman 6	4.5
Apprenticeship Electrician 057, Inside Wireman 7	4.5
Apprenticeship Electrician 058, Inside Wireman 8	4.5
Apprenticeship Electrician 059, Inside Wireman 9	4.5
Apprenticeship Electrician 060, Inside Wireman 10	4.5
Apprenticeship Electrician 061, Electrical Safety and First Aid	1.5
TOTAL	46.5

Apprenticeship Electricity-Intelligent Transportation Systems Electrician

The Associate of Science degree and Certificate of Achievement in Apprenticeship Electricity Intelligent Transportation Systems Electrician provide related and supplemental instruction for electrical apprentices. The program is designed to train apprentices in the process of planning, installing and maintaining intelligent transportation signal systems beginning with the rudimentary elements of construction housekeeping and safety, and then continuing on through the more advanced techniques of job planning, layout, installation and start-up. Apprentices will learn to use the National Electrical Safety codes, Caltrans installation plans and specifications and IMSA standards and practices. Apprentices will receive hand-on training as well as instruction in electrical theory. Apprentices who successfully complete this program will be eligible for Intelligent Transportation Systems Electrician Journeyworker status. They will have the skills necessary to work for signatory Intelligent Transportation/Traffic Signal contractors and will be qualified to train apprentices.

Associate of Science Intelligent Transportation Systems Electrician (22271)

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Begin a career as a journeyworker electrician.
- Have a basis for further college education.

Major requirements*	Units
Apprenticeship Electrician 031, Intelligent Transportation Systems Electrician Apprentice 1	4.5
Apprenticeship Electrician 032, Intelligent Transportation Systems Electrician Apprentice 2	4.5
Apprenticeship Electrician 033, Intelligent Transportation Systems Electrician Apprentice 3	4.5
Apprenticeship Electrician 034, Intelligent Transportation Systems Electrician Apprentice 4	4.5
Apprenticeship Electrician 035, Intelligent Transportation Systems Electrician Apprentice 5	4.5
Apprenticeship Electrician 036, Intelligent Transportation Systems Electrician Apprentice 6	4.5
Apprenticeship Electrician 037, Intelligent Transportation Systems Electrician Apprentice 7	4.5
Apprenticeship Electrician 038, Intelligent Transportation Systems Electrician Apprentice 8	4.5
TOTAL	36

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Certificate of Achievement Intelligent Transportation Systems Electrician (22270)

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Begin a career as a journeyworker electrician.
- Have a basis for further college education.

Certificate requirements	Units
Apprenticeship Electrician 031, Intelligent Transportation Systems Electrician Apprentice 1	4.5
Apprenticeship Electrician 032, Intelligent Transportation Systems Electrician Apprentice 2	4.5
Apprenticeship Electrician 033, Intelligent Transportation Systems Electrician Apprentice 3	4.5
Apprenticeship Electrician 034, Intelligent Transportation Systems Electrician Apprentice 4	4.5
Apprenticeship Electrician 035, Intelligent Transportation Systems Electrician Apprentice 5	4.5
Apprenticeship Electrician 036, Intelligent Transportation Systems Electrician Apprentice 6	4.5
Apprenticeship Electrician 037, Intelligent Transportation Systems Electrician Apprentice 7	4.5
Apprenticeship Electrician 038, Intelligent Transportation Systems Electrician Apprentice 8	4.5
TOTAL	36

Apprenticeship Electricity-Sound Installer

The Associate of Science degree and Certificate of Achievement in Apprenticeship Electricity Sound Installer provide related and supplemental instruction for electrical apprentices who have been recommended by the Joint Apprenticeship Committee. Interested apprentices should contact the committee and the Apprenticeship Office at Santiago Canyon College. Successful completion may lead to state journeyworker certification.

Associate of Science Sound Installer (19588)

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Begin a career as a journeyworker electrician.
- Have a basis for further college education.

Major requirements*	Units
Apprenticeship Electrician 021, Sound and Communication Apprentice 1	4.5
Apprenticeship Electrician 022, Sound and Communication Apprentice 2	4.5
Apprenticeship Electrician 023, Sound and Communication Apprentice 3	4.5
Apprenticeship Electrician 024, Sound and Communication Apprentice 4	4.5
Apprenticeship Electrician 025, Sound and Communication Apprentice 5	4.5
Apprenticeship Electrician 026, Sound and Communication Apprentice 6	4.5
TOTAL	27

Certificate of Achievement Sound Installer (19587)

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Begin a career as a journeyworker electrician.
- Have a basis for further college education.

Certificate requirements	Units
Apprenticeship Electrician 021, Sound and Communication Apprentice 1	4.5
Apprenticeship Electrician 022, Sound and Communication Apprentice 2	4.5
Apprenticeship Electrician 023, Sound and Communication Apprentice 3	4.5
Apprenticeship Electrician 024, Sound and Communication Apprentice 4	4.5
Apprenticeship Electrician 025, Sound and Communication Apprentice 5	4.5
Apprenticeship Electrician 026, Sound and Communication Apprentice 6	4.5
TOTAL	27

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Apprenticeship Electricity-Sound Technician

The Associate of Science degree and Certificate of Achievement in Apprenticeship Electricity Sound Technician provide related and supplemental instruction for electrical apprentices who have been recommended by the Joint Apprenticeship Committee. Interested apprentices should contact the committee and the Apprenticeship Office at Santiago Canyon College. Successful completion may lead to state journeyworker certification.

**Associate of Science
Sound Technician (19590)**

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Begin a career as a journeyworker electrician.
- Have a basis for further college education.

Major requirements*	Units
Apprenticeship Electrician 021, Sound and Communication Apprentice 1	4.5
Apprenticeship Electrician 022, Sound and Communication Apprentice 2	4.5
Apprenticeship Electrician 023, Sound and Communication Apprentice 3	4.5
Apprenticeship Electrician 024, Sound and Communication Apprentice 4	4.5
Apprenticeship Electrician 025, Sound and Communication Apprentice 5	4.5
Apprenticeship Electrician 026, Sound and Communication Apprentice 6	4.5
Apprenticeship Electrician 027, Sound and Communication Apprentice 7	4.5
Apprenticeship Electrician 028, Sound and Communication Apprentice 8	4.5
TOTAL	36

**Certificate of Achievement
Sound Technician (19589)**

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Begin a career as a journeyworker electrician.
- Have a basis for further college education.

Certificate requirements	Units
Apprenticeship Electrician 021, Sound and Communication Apprentice 1	4.5
Apprenticeship Electrician 022, Sound and Communication Apprentice 2	4.5
Apprenticeship Electrician 023, Sound and Communication Apprentice 3	4.5
Apprenticeship Electrician 024, Sound and Communication Apprentice 4	4.5
Apprenticeship Electrician 025, Sound and Communication Apprentice 5	4.5
Apprenticeship Electrician 026, Sound and Communication Apprentice 6	4.5
Apprenticeship Electrician 027, Sound and Communication Apprentice 7	4.5
Apprenticeship Electrician 028, Sound and Communication Apprentice 8	4.5
TOTAL	36

Courses

**Apprenticeship Electrician 021
Sound and Communication Apprentice 1**

Unit(s): 4.5

Class Hours: 68 Lecture total, 12 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the required related and supplemental instruction for sound electrician apprentices in the structure and requirements of the International Brotherhood of Electrical Workers (IBEW) and the National Electrical Contractors Association (NECA) apprenticeship program, tools, structured wiring, mathematics for electricity, and series circuits. Open Entry/Open Exit.

**Apprenticeship Electrician 022
Sound and Communication Apprentice 2**

Unit(s): 4.5

Class Hours: 68 Lecture total, 12 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides related and supplemental instruction for electrician apprentices in combination circuits, Commercial Building Telecommunications Cable Standard, residential and light commercial telecommunications wiring, National Electrical Code, blueprint reading. Open Entry/Open Exit.

**Apprenticeship Electrician 023
Sound and Communication Apprentice 3**

Unit(s): 4.5

Class Hours: 68 Lecture total, 12 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides related and supplemental instruction for electrician apprentices in the International Brotherhood of Electrical Workers (IBEW), National Electrical Code, Direct Current (DC) theory; comparing DC to Alternating Current (AC), telephone systems, basic security systems. Open Entry/Open Exit.

**Apprenticeship Electrician 024
Sound and Communication Apprentice 4**

Unit(s): 4.5

Class Hours: 68 Lecture total, 12 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides related and supplemental instruction for electrician apprentices in commercial building grounding and bonding requirements for telecommunications, electrical test equipment, blueprint reading. Open Entry/Open Exit.

**Apprenticeship Electrician 025
Sound and Communication Apprentice 5**

Unit(s): 4.5

Class Hours: 68 Lecture total, 12 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides related and supplemental instruction for electrician apprentices in basic input/output (I/O) hardware, memory, diodes, transducers and transistors, silicon-controlled rectifiers (SCR) applications, amplifiers, electronic applications, cost awareness, private Closed Circuit Television (CATV) distribution systems, microwave radio systems. Open Entry/Open Exit.

**Apprenticeship Electrician 026
Sound and Communication Apprentice 6**

Unit(s): 4.5

Class Hours: 68 Lecture total, 12 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides related and supplemental instruction for electrician apprentices in ladder diagrams and relay type instructions, programming devices, data manipulation and arithmetic, shift registers and sequencers, start up and troubleshooting, nurse call systems, sound and paging systems, LAN software, blueprint reading. Open Entry/Open Exit.

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Apprenticeship Electrician 027
Sound and Communication Apprentice 7

Unit(s): 4.5

Class Hours: 68 Lecture total, 12 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides related and supplemental instruction for indentured electrician apprentices in National Association of Communication Contractors (NACC) Fiber Optic Certification, Auto Marine Products (AMP) ACT I, and National Institute for Certification in Engineering Technologies (NICET) Level II Fire Alarm Systems. Open Entry/Open Exit.

Apprenticeship Electrician 028
Sound and Communication Apprentice 8

Unit(s): 4.5

Class Hours: 68 Lecture total, 12 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides related and supplemental instruction for indentured electrician apprentices in Building Industry Consulting Services International (BICSI) Technician training, high pair count copper splicing, connectors for audiovisual and communications, Master Antenna Television/Cable Television Radio Frequency (MATV/CATV) Radio Frequency (RF) Broadband Distribution, National Institute for Certification in Engineering Technologies (NICET) Level II Audio Systems Technician training. Open Entry/Open Exit.

Apprenticeship Electrician 031
Intelligent Transportation Systems Electrician Apprentice 1

Unit(s): 4.5

Class Hours: 62 Lecture total, 30 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplement instruction required for apprentice electricians in the intelligent transportation industry, safety, hand signals, wire construction and insulation properties. Introduction to Caltrans Plans and Specifications. Open Entry/Open Exit.

Apprenticeship Electrician 032
Intelligent Transportation Systems Electrician Apprentice 2

Unit(s): 4.5

Class Hours: 62 Lecture total, 30 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplement instruction for apprentice electricians in fall protection, rigging tools and equipment, underground installations, basic signal blueprint reading, electron theory, and DC series circuits. Continued study of Caltrans Plans and Specifications. Open Entry/Open Exit.

Apprenticeship Electrician 033
Intelligent Transportation Systems Electrician Apprentice 3

Unit(s): 4.5

Class Hours: 62 Lecture total, 30 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction for apprentice electricians in grounding, DC parallel circuits, codeology, excavation, and spans and mastarms. Continued study of Caltrans Plans and Specifications. Open Entry/Open Exit.

Apprenticeship Electrician 034
Intelligent Transportation Systems Electrician Apprentice 4

Unit(s): 4.5

Class Hours: 62 Lecture total, 30 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction for apprentice electricians in proper hoisting of loads, concrete fundamentals, DC combination circuits, test instruments and troubleshooting, magnetism, current, transformers, traffic signal cabinets and equipment. Continued study of Caltrans Plans and Specifications. Open Entry/Open Exit.

Apprenticeship Electrician 035
Intelligent Transportation Systems Electrician Apprentice 5

Unit(s): 4.5

Class Hours: 62 Lecture total, 30 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction required for apprentice electricians in RL circuits, RC circuits, LC circuits, job overhead, time space diagrams, bridge blueprints, sign structures, street lighting, productivity, and controllers. Continued study of Caltrans Plans and Specifications. Open Entry/Open Exit.

Apprenticeship Electrician 036
Intelligent Transportation Systems Electrician Apprentice 6

Unit(s): 4.5

Class Hours: 62 Lecture total, 30 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction required for apprentice electricians in alternative energy sources, fiber optics, testing and certification, video security systems, and traffic signal troubleshooting. Continued study of Caltrans Plans and Specifications. Open Entry/Open Exit.

Apprenticeship Electrician 037
Intelligent Transportation Systems Electrician Apprentice 7

Unit(s): 4.5

Class Hours: 62 Lecture total, 30 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction required for apprentice electricians in preparing for the California State Electrical Certification Exam. Open Entry/Open Exit.

Apprenticeship Electrician 038
Intelligent Transportation Systems Electrician Apprentice 8

Unit(s): 4.5

Class Hours: 62 Lecture total, 30 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction required for apprentice electricians in motor control, supervision/foremanship, and safety. Open Entry/Open Exit.

Apprenticeship Electrician 051
Inside Wireman 1

Unit(s): 4.5

Class Hours: 62 Lecture total, 30 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

First semester of a five year program. Provides related and supplemental instruction in tools and fasteners, knot tying, math and materials, building materials and safety, and residential blueprints required for entry-level inside wireman apprentices. Open Entry/Open Exit.

Apprenticeship Electrician 052
Inside Wireman 2

Unit(s): 4.5

Class Hours: 62 Lecture total, 30 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Second semester of a five year program. Provides related and supplemental instruction in Direct Current (DC) theory, the National Electrical Code, safe work practices, series circuits, parallel circuits, combination circuits, principles of magnetism and electromagnetism for inside wireman apprentices. Open Entry/Open Exit.



**Apprenticeship Electrician 053
Inside Wireman 3**

Unit(s): 4.5
Class Hours: 62 Lecture total, 30 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Third semester of a five year program. Provides related and supplemental instruction in codeology, test instruments and sine waves, three-phase systems, residential and commercial blueprints, mechanical bending for inside wireman apprentices. Open Entry/Open Exit.

**Apprenticeship Electrician 054
Inside Wireman 4**

Unit(s): 4.5
Class Hours: 62 Lecture total, 30 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Fourth semester of a five year program. Provides related and supplemental instruction in electrical theory, transformers, and National Electrical Code application for inside wireman apprentices. Open Entry/Open Exit.

**Apprenticeship Electrician 055
Inside Wireman 5**

Unit(s): 4.5
Class Hours: 62 Lecture total, 30 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Fifth semester of a five year program. Provides related and supplemental instruction in the National Electric Code, grounding, and NEC Code Calculations for inside wireman apprentices. Open Entry/Open Exit.

**Apprenticeship Electrician 056
Inside Wireman 6**

Unit(s): 4.5
Class Hours: 62 Lecture total, 30 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Sixth semester of a five year program. Provides related and supplemental instruction in motors, motor control and code as applied to motor protection for inside wireman apprentices. Open Entry/Open Exit.

**Apprenticeship Electrician 057
Inside Wireman 7**

Unit(s): 4.5
Class Hours: 62 Lecture total, 30 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Seventh semester of a five year program. Provides related and supplemental instruction in programmable logic controllers and fire alarm systems for inside wireman apprentices. Open Entry/Open Exit.

**Apprenticeship Electrician 058
Inside Wireman 8**

Unit(s): 4.5
Class Hours: 62 Lecture total, 30 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Eighth semester of a five year program. Provides related and supplemental instruction in instrumentation, building automation and lighting systems for inside wireman apprentices. Open Entry/Open Exit.

**Apprenticeship Electrician 059
Inside Wireman 9**

Unit(s): 4.5
Class Hours: 62 Lecture total, 30 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Ninth semester of a five year program. Provides related and supplemental instruction in the National Electrical Code in preparation for the California State Electrical Examination for inside wireman apprentices. Prepares for competency exams. Open Entry/Open Exit.

**Apprenticeship Electrician 060
Inside Wireman 10**

Unit(s): 4.5
Class Hours: 62 Lecture total, 30 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Final semester of a five year program. Provides related and supplemental instruction in jobsite management, jobsite safety and photovoltaic systems for inside wireman apprentices. Open Entry/Open Exit.

**Apprenticeship Electrician 061
Electrical Safety and First Aid**

Unit(s): 1.5
Class Hours: 30 Lecture total.
Prerequisite: Must be a state-indentured apprentice.
Provides related and supplemental instruction in Occupational Safety and Health Administration (OSHA) workplace requirements, the identification and use of safe work practices, coping with accidents and emergency situations, and one person CPR for inside wireman apprentices. American Red Cross certification available upon successful completion. Grade: Pass/No Pass. Open Entry/Open Exit.



APPRENTICESHIP INSULATOR (AIN)

Courses

Apprenticeship Insulator 021

Orientation

Unit(s): 2.0

Class Hours: 30 Lecture total, 10 Laboratory total.

Prerequisite: Must be a state-indentured Insulator apprentice.

This course provides an overview of the construction industry, safety, and green building awareness. Upon successful completion, students will receive Occupational Safety and Health Administration (OSHA) 10 hour and Powder Actuated Tool certification, and United Brotherhood of Carpenters (UBC) Fall Protection qualification cards. Open Entry/Open Exit.

Apprenticeship Insulator 022

Safety and Health Certifications

Unit(s): 2.0

Class Hours: 30 Lecture total, 10 Laboratory total.

Prerequisite: Must be a state-indentured Insulator apprentice. Apprenticeship Insulator 021.

This course covers the safe and appropriate use of scaffolds, aerial lift and fork lift equipment, and emergency response procedures. Upon successful completion, students will be issued American Red Cross First Aid and cardiopulmonary resuscitation (CPR) certification and United Brotherhood of Carpenters (UBC) scaffold, Aerial Lift and Forklift Qualification Cards. Open Entry/Open Exit.

Apprenticeship Insulator 023

Insulation Basics

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured Insulator apprentice. Apprenticeship Insulator 021 and 022.

This course provides an introduction into insulation as an energy efficiency technology and covers common types of insulating products and typical industry applications. Job planning, preparation and personal protective equipment will be included in performance exercises. Open Entry/Open Exit.

Apprenticeship Insulator 024

Construction Methods

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured Insulator apprentice. Apprenticeship Insulator 021 and 022.

This course presents the theory, methods, and procedures required to frame basic walls. Hands-on practice using proper tool techniques and appropriate materials will enhance fundamental skill development. Open Entry/Open Exit.

Apprenticeship Insulator 025A

Print Reading

Unit(s): 2.0

Class Hours: 30 Lecture total, 10 Laboratory total.

Prerequisite: Must be a state-indentured Insulator apprentice. Apprenticeship Insulator 021 and 022.

This course introduces basic visualization skills needed for reading and interpreting construction prints. Views, elevations and the role of specifications as they relate to insulation details on prints will be discussed. Open Entry/Open Exit.

Apprenticeship Insulator 025B

Advanced Print Reading

Unit(s): 2.0

Class Hours: 30 Lecture total, 10 Laboratory total.

Prerequisite: Must be a state-indentured Insulator apprentice. Apprenticeship Insulator 021 and 022.

In this course, students will analyze multi-view drawings to determine construction type, locate benchmark and building elements; review codes, references, and perform calculations for construction/insulation planning. Open Entry/Open Exit.

Apprenticeship Insulator 026

Sound Control and Weatherstripping

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured Insulator apprentice. Apprenticeship Insulator 021 and 022.

This course explores building construction systems and materials used to control sound. How sound travels and/or is absorbed by building materials will be presented. Practical experience will be gained during installation of wall systems, weatherstripping, and insulating materials designed to absorb, diffuse, disperse and/or control sound. Open Entry/Open Exit.

Apprenticeship Insulator 027

Flexible Foam Insulation

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured Insulator apprentice. Apprenticeship Insulator 021 and 022.

This course covers the identification of flexible foam materials, installation methods, and industry applications. The procedures and tool techniques used to fabricate and install several types of equipment covers using flexible foam insulation will be presented and practiced shop floor exercises. Open Entry/Open Exit.

Apprenticeship Insulator 031

Green Building and Weatherization

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured Insulator apprentice. Apprenticeship Insulator 021 and 022.

This course explains in detail building envelope science. Audit procedures, as well as testing and reporting mechanisms used to measure inefficiencies will be covered. Training will provide novice workers with fundamental skills to properly install the beneficial ['green'] and cost effective energy efficient retro-fits for residential buildings. Open Entry/Open Exit.

Apprenticeship Insulator 031J

Green Building and Weatherization - Journeyworker

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Active Carpenter Union Member.

This course provides experienced carpenters with updated building envelope science concepts focused on energy efficiency. Audit procedures, as well as testing and reporting mechanisms used to measure inefficiencies will be covered. Training will provide workers with specialized skills to properly install the beneficial ['green'] and cost effective energy efficient retro-fits for residential buildings. Grade: Pass/No Pass.



**Apprenticeship Insulator 032
Specialty Installations**

Unit(s): 1.5
Class Hours: 20 Lecture total, 20 Laboratory total.
Prerequisite: Must be a state-indentured Insulator apprentice. Apprenticeship Insulator 021 or 022.

This course describes insulation systems materials and installation methods that usually performed by specialty contractors. Instruction will include refrigeration, curtain walls, plenums, access hatches, and spray systems. Students will calculate and prepare materials, and utilize the proper installation techniques during shop exercises. Open Entry/Open Exit.

**Apprenticeship Insulator 033
Energy Audit**

Unit(s): 1.5
Class Hours: 20 Lecture total, 20 Laboratory total.
Prerequisite: Must be a state-indentured Insulator apprentice. Apprenticeship Insulator 021 and 022.

This course covers the building envelope-science, audit procedures, testing and reporting mechanisms used to measure inefficiencies and identify beneficial and cost effective energy efficient retro-fits for residential buildings. Open Entry/Open Exit.

**Apprenticeship Insulator 034
Firestop/Fireproofing Procedures**

Unit(s): 1.5
Class Hours: 20 Lecture total, 20 Laboratory total.
Prerequisite: Must be a state-indentured Insulator apprentice. Apprenticeship Insulator 021 and 022.

This course will focus on the correct methods, technical skills, and firestop/fireproofing materials required in the work place today. Strict building codes mandate the importance of certified training. Open Entry/Open Exit.

**Apprenticeship Insulator 035
Infiltration and Moisture Control**

Unit(s): 1.5
Class Hours: 20 Lecture total, 20 Laboratory total.
Prerequisite: Must be a state-indentured Insulator apprentice. Apprenticeship Insulator 021 and 022.

This course covers air infiltration and how it affects the energy efficiency of a building, as well as the techniques, strategies and insulation installation skills designed to prevent energy loss, and damage due to condensation and infiltration described as 'moisture build up' inside the building envelope. Open Entry/Open Exit.

**Apprenticeship Insulator 036
Loose Fill and Spray Insulation**

Unit(s): 1.5
Class Hours: 20 Lecture total, 20 Laboratory total.
Prerequisite: Must be a state-indentured Insulator apprentice. Apprenticeship Insulator 021 and 022.

This course presents the differences between batt, ridged, loose-fill, and spray types of thermal insulation. The product distinctions, thermal advantages, and variation of typical installation practices will be covered. An in depth discussion of safety precautions and operating procedures for spray equipment and blow rigs (trucks) used in loose fill applications will be presented. Open Entry/Open Exit.

**Apprenticeship Insulator 037
Rigid Foam and Cellular Glass Insulation Installations**

Unit(s): 1.5
Class Hours: 20 Lecture total, 20 Laboratory total.
Prerequisite: Must be a state-indentured Insulator apprentice. Apprenticeship Insulator 021 and 022.

This course covers the identification of rigid and cellular glass materials, installation methods, and industry applications. The proper handling and installation techniques for molded and extruded polystyrene foam boards, and cellular glass insulation will be stressed during shop exercises. Open Entry/Open Exit.

**Apprenticeship Insulator 041
Supervisory Training**

Unit(s): 2.5
Class Hours: 40 Lecture total.
Prerequisite: Must be a state-indentured Insulator apprentice. Apprenticeship Insulator 021 and 022.

This course covers the supervisory and leadership skills required for professional development, including the typical work processes, communication methods, motivational concepts and problem solving techniques, that when employed, result in efficient and effective management of construction projects. Open Entry/Open Exit.

**Apprenticeship Insulator 043
Tool/Equipment Applications**

Unit(s): 1.5
Class Hours: 20 Lecture total, 20 Laboratory total.
Prerequisite: Must be a state-indentured Insulator apprentice. Apprenticeship Insulator 021 and 022.

This course promotes hand/power tool and equipment skill development for various construction applications. Scaffold building and aerial lift safety and operating procedures will also be covered. Upon successful completion, interior systems students will be issued United Brotherhood of Carpenters (UBC) Aerial Lift and Scaffold Erector-Welded Frame Qualification Cards. Open Entry/Open Exit.



APPRENTICESHIP MAINTENANCE MECHANIC (AMM)

Division of Business and Career Technical Education

Dean: Von Lawson

The Associate of Science degree and Certificate of Achievement in Apprenticeship Maintenance Mechanic Apprentice I and II provide the related and supplemental instruction required for Metropolitan Water District (MWD) Maintenance Mechanic apprentices who have been selected by the apprenticeship committee. Those interested should contact the Maintenance Mechanic apprenticeship committee or the Apprenticeship Office at Santiago Canyon College.

Associate of Science Maintenance Mechanic Apprentice I (16839)

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Begin a career as a journeyworker maintenance mechanic.
- Have a basis for further college education.

Major requirements*	Units
Apprenticeship Maintenance Mechanic 021, Maintenance Mechanic Apprentice, Level 1	4.5
Apprenticeship Maintenance Mechanic 022, Maintenance Mechanic Apprentice I, Level 2	4.5
Apprenticeship Maintenance Mechanic 043, Maintenance Mechanic Apprentice I, Level 3	4.5
Apprenticeship Maintenance Mechanic 044, Maintenance Mechanic Apprentice I, Level 4	4.5
Apprenticeship Maintenance Mechanic 045, Maintenance Mechanic Apprentice I, Level 5	4.5
Apprenticeship Maintenance Mechanic 046, Maintenance Mechanic Apprentice I, Level 6	4.5
Apprenticeship Maintenance Mechanic 047, Maintenance Mechanic Apprentice I, Level 7	4.5
Apprenticeship Maintenance Mechanic 048, Job Planning/Advanced Mechanical Maintenance - Operations and Maintenance Technician IV	4.5
TOTAL	36

Certificate of Achievement Maintenance Mechanic Apprentice I (21651)

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Begin a career as a journeyworker maintenance mechanic.
- Have a basis for further college education.

Certificate requirements	Units
Apprenticeship Maintenance Mechanic 021, Maintenance Mechanic Apprentice, Level 1	4.5
Apprenticeship Maintenance Mechanic 022, Maintenance Mechanic Apprentice I, Level 2	4.5
Apprenticeship Maintenance Mechanic 043, Maintenance Mechanic Apprentice I, Level 3	4.5
Apprenticeship Maintenance Mechanic 044, Maintenance Mechanic Apprentice I, Level 4	4.5
Apprenticeship Maintenance Mechanic 045, Maintenance Mechanic Apprentice I, Level 5	4.5
Apprenticeship Maintenance Mechanic 046, Maintenance Mechanic Apprentice I, Level 6	4.5
Apprenticeship Maintenance Mechanic 047, Maintenance Mechanic Apprentice I, Level 7	4.5

Apprenticeship Maintenance Mechanic 048, Job Planning/Advanced Mechanical Maintenance - Operations and Maintenance Technician IV	4.5
TOTAL	36

Associate of Science Maintenance Mechanic Apprentice II (11982)

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Begin a career as a journeyworker maintenance mechanic.
- Have a basis for further college education.

Major requirements*	Units
Apprenticeship Maintenance Mechanic 021, Maintenance Mechanic Apprentice, Level 1	4.5
Apprenticeship Maintenance Mechanic 052, Introduction to Electricity - Operations and Maintenance Technical IV (Electrical)	4.5
Apprenticeship Maintenance Mechanic 053, Industrial Rigging/Reading Blueprints/AC Power Systems and Control - Operations & Maintenance Technician IV (Electrical)	4.5
Apprenticeship Maintenance Mechanic 054, AC,DC Motors and Motor Control Circuits	4.5
Apprenticeship Maintenance Mechanic 055, VFDs, Circuit Measurements and Troubleshooting	4.5
Apprenticeship Maintenance Mechanic 056, PLCs/Motor Control/Troubleshooting	4.5
Apprenticeship Maintenance Mechanic 057, Electrical Safety/System Troubleshooting	4.5
Apprenticeship Maintenance Mechanic 058, Predictive Maintenance/Troubleshooting and Lighting	4.5
TOTAL	36

Certificate of Achievement Maintenance Mechanic Apprentice II (21653)

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Begin a career as a journeyworker maintenance mechanic.
- Have a basis for further college education.

Certificate requirements	Units
Apprenticeship Maintenance Mechanic 021, Maintenance Mechanic Apprentice, Level 1	4.5
Apprenticeship Maintenance Mechanic 052, Introduction to Electricity - Operations and Maintenance Technical IV (Electrical)	4.5
Apprenticeship Maintenance Mechanic 053, Industrial Rigging/Reading Blueprints/AC Power Systems and Control - Operations & Maintenance Technician IV (Electrical)	4.5
Apprenticeship Maintenance Mechanic 054, AC,DC Motors and Motor Control Circuits	4.5
Apprenticeship Maintenance Mechanic 055, VFDs, Circuit Measurements and Troubleshooting	4.5
Apprenticeship Maintenance Mechanic 056, PLCs/Motor Control/Troubleshooting	4.5
Apprenticeship Maintenance Mechanic 057, Electrical Safety/System Troubleshooting	4.5
Apprenticeship Maintenance Mechanic 058, Predictive Maintenance/Troubleshooting and Lighting	4.5
TOTAL	36

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Courses

**Apprenticeship Maintenance Mechanic 021
Maintenance Mechanic Apprentice, Level 1**

Unit(s): 4.5
Class Hours: 64 Lecture total, 25 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Provides the related and supplemental instruction required for the first level Maintenance Mechanic Apprentice I in mathematics, industrial safety and health, using hand and portable power tools, basic measurements, basic electricity, and basic mechanics. Open Entry/Open Exit.

**Apprenticeship Maintenance Mechanic 022
Maintenance Mechanic Apprentice I, Level 2**

Unit(s): 4.5
Class Hours: 60 Lecture total, 38 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Provides the related and supplemental instruction required for the second level Maintenance Mechanic Apprentice I in electrical safety and protection; introductory Metropolitan Water District (MWD) System Operating Orders, building and construction codes; standards and specifications; and blueprints, symbols, drawings, and schematics, diagrams. Open Entry/Open Exit.

**Apprenticeship Maintenance Mechanic 043
Maintenance Mechanic Apprentice I, Level 3**

Unit(s): 4.5
Class Hours: 52 Lecture total, 61 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Provides the related and supplemental instruction required for the third level Maintenance Mechanic Apprentice I in rigging and hoisting principles and practices, basic pneumatics and hydraulics, mechanical and fluid power transmissions systems, and equipment installation and maintenance. Open Entry/Open Exit.

**Apprenticeship Maintenance Mechanic 044
Maintenance Mechanic Apprentice I, Level 4**

Unit(s): 4.5
Class Hours: 56 Lecture total, 48 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Provides the related and supplemental instruction required for the fourth level Maintenance Mechanic Apprentice I in pump types and applications; piping systems; pump hydraulics; tubing and hose applications, installation and maintenance; installation and maintenance pipefitting; and troubleshooting skills. Open Entry/Open Exit.

**Apprenticeship Maintenance Mechanic 045
Maintenance Mechanic Apprentice I, Level 5**

Unit(s): 4.5
Class Hours: 62 Lecture total, 30 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Provides the related and supplemental instruction for the fifth level Maintenance Mechanic Apprentice I in the properties and characteristics of ferrous and nonferrous metals, welding principles, oxy-fuel welding and cutting operations, arc welding operations, welding codes and standards. Open Entry/Open Exit.

**Apprenticeship Maintenance Mechanic 046
Maintenance Mechanic Apprentice I, Level 6**

Unit(s): 4.5
Class Hours: 58 Lecture total, 44 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Provides the related and supplemental instruction required for the sixth level Maintenance Mechanic Apprentice I in machine shop practices and operations. Open Entry/Open Exit.

**Apprenticeship Maintenance Mechanic 047
Maintenance Mechanic Apprentice I, Level 7**

Unit(s): 4.5
Class Hours: 62 Lecture total, 30 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Provides the related and supplemental instruction for the seventh level Maintenance Mechanic Apprentice I in the areas of water treatment plant operations and water distribution. Open Entry/Open Exit.

**Apprenticeship Maintenance Mechanic 048
Job Planning/Advanced Mechanical Maintenance - Operations and Maintenance Technician IV**

Unit(s): 4.5
Class Hours: 64 Lecture total, 26 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Provides the related and supplemental instruction required for the eighth level Maintenance Mechanic Apprentice I in mechanical systems; maintenance and operations procedures; and project planning, layout, estimating, and scheduling. Open Entry/Open Exit.

**Apprenticeship Maintenance Mechanic 052
Introduction to Electricity - Operations and Maintenance Technical IV (Electrical)**

Unit(s): 4.5
Class Hours: 64 Lecture total, 26 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Provides the related and supplemental instruction required for the second level Maintenance Mechanic Apprentice II in basic electrical circuits; Direct Current (DC) circuits and batteries; electromagnetism, inductance and capacitance; transformers and Alternating Current (AC) circuits, electrical measuring instruments; electrical safety in the workplace (NFPA 70E), electrical protective devices and introduction to the National Electric Code. Open Entry/Open Exit.

**Apprenticeship Maintenance Mechanic 053
Industrial Rigging/Reading Blueprints/AC Power Systems and Control - Operations & Maintenance Technician IV (Electrical)**

Unit(s): 4.5
Class Hours: 64 Lecture total, 25 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Provides the related and supplemental instruction required for the third level Maintenance Mechanic Apprentice II in reading blueprints, schematics, symbols, drawings and diagrams; rigging principles and practices for electricians; AC/DC equipment and controls; AC generation, transmission and distribution; Over-current protective devices; Continuing Education with the NEC and NFPA 70E Workplace Electrical Safety. Open Entry/Open Exit.

**Apprenticeship Maintenance Mechanic 054
AC,DC Motors and Motor Control Circuits**

Unit(s): 4.5
Class Hours: 64 Lecture total, 25 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Provides the related and supplemental instruction required for the fourth level Maintenance Mechanic Apprentice II in the application of code requirements, intermediate electricity, single phase motors, three phase systems, and electrical troubleshooting skills. Open Entry/Open Exit.

**Apprenticeship Maintenance Mechanic 055
VFDs, Circuit measurements and Troubleshooting**

Unit(s): 4.5
Class Hours: 58 Lecture total, 42 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Provides the related and supplemental instruction required for the fifth level Maintenance Mechanic Apprentice II in the application of code requirements, variable frequency drives (VFD), VFD faults and troubleshooting, input/output devices, semi-conductors, and power supplies. Open Entry/Open Exit.



Apprenticeship Maintenance Mechanic 056 PLCs/Motor Control/Troubleshooting

Unit(s): 4.5

Class Hours: 48 Lecture total, 72 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction required for the sixth level Maintenance Mechanic Apprentice II in the application of code requirements, conserving energy in electrical systems, process controls, introductory programming, programmable logic controllers and advanced electricity. Open Entry/Open Exit.

Apprenticeship Maintenance Mechanic 057 Electrical Safety/System Troubleshooting

Unit(s): 4.5

Class Hours: 64 Lecture total, 25 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction required for the seventh level Maintenance Mechanic Apprentice II in water treatment plant and water distribution system operations and advanced electricity and electrical systems. Open Entry/Open Exit.

Apprenticeship Maintenance Mechanic 058 Predictive Maintenance/Troubleshooting and Lighting

Unit(s): 4.5

Class Hours: 64 Lecture total, 25 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction required for the eighth level Maintenance Mechanic Apprentice II in the application of code requirements; advanced electricity and electrical systems; maintenance and operations procedures; project planning, layout, estimating and scheduling. Open Entry/Open Exit.

APPRENTICESHIP MILLWRIGHT (AMW)

Apprenticeship Carpentry-Millwrighting

The Associate of Science degree and Certificate of Achievement in Apprenticeship Carpentry Millwrighting provide the required related and supplemental classroom instruction in the technical skills and knowledge required in the trade for state-indentured apprentices. The work of the Millwright involves installing conveyor systems, escalators, gas and steam turbines, and generators. Millwrights install and do maintenance on machinery in factories and do much of the precision work in nuclear power plants. Skilled construction Millwright mechanics study and interpret prints or working drawings, and then apply their knowledge and expertise to move, assemble, and erect machinery and rotating equipment. Interested apprentices should contact the Millwright Apprenticeship and Training Committee and the Apprenticeship Office at Santiago Canyon College.

Associate of Science Millwrighting (11986)

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Be eligible to work as a Millwright journeyworker.
- Continue their college education, using the units earned.

Major requirements*

	Units
Apprenticeship Millwright 021, Orientation	2
Apprenticeship Millwright 022, Safety and Health Certifications	2
Apprenticeship Millwright 023A, Millwright General Skills - A	1.5
Apprenticeship Millwright 023B, Millwright General Skills - B	1.5
Apprenticeship Millwright 024, Printreading	2
Apprenticeship Millwright 025, Welding Fabrication	1.5
Apprenticeship Millwright 026, Cutting and Burning	1.5
Apprenticeship Millwright 027, Optics and Machinery Alignment	1.5
Apprenticeship Millwright 028, Machinery Shaft Alignment	1.5
Apprenticeship Millwright 029A, Structural Welding - AWS A	1.5
Apprenticeship Millwright 029B, Structural Welding - AWS B	1.5
Apprenticeship Millwright 030, Rigging Hardware and Procedures	1.5
Apprenticeship Millwright 031, Turbine Familiarization	1.5
Apprenticeship Millwright 032, Pumps	1.5
Apprenticeship Millwright 036A, Machinery Installation and Erection - A	1.5
Apprenticeship Millwright 043, Tool/Equipment Applications	1.5
Select four (4) courses from the following:	6
Apprenticeship Millwright 033, Conveyor Systems (1.5)	
Apprenticeship Millwright 034, Drives, Pulleys and Belts (1.5)	
Apprenticeship Millwright 036B, Machinery Installation and Erection - B (1.5)	
Apprenticeship Millwright 037, Turbine Maintenance (1.5)	
Apprenticeship Millwright 038, Concentrated Photovoltaic Installations (1.5)	
Apprenticeship Millwright 039, Compressor Theory and Maintenance (1.5)	
Apprenticeship Millwright 040, Wind Turbine Installations (1.5)	
Apprenticeship Millwright 051, Solar Installer Level 1 (1.5)	
TOTAL	31.5

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



**Certificate of Achievement
Millwrighting (21662)**

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Be eligible to work as a Millwright journeyworker.
- Continue their college education, using the units earned.

Certificate requirements	Units
Apprenticeship Millwright 021, Orientation	2
Apprenticeship Millwright 022, Safety and Health Certifications	2
Apprenticeship Millwright 023A, Millwright General Skills - A	1.5
Apprenticeship Millwright 023B, Millwright General Skills - B	1.5
Apprenticeship Millwright 024, Printreading	2
Apprenticeship Millwright 025, Welding Fabrication	1.5
Apprenticeship Millwright 026, Cutting and Burning	1.5
Apprenticeship Millwright 027, Optics and Machinery Alignment	1.5
Apprenticeship Millwright 028, Machinery Shaft Alignment	1.5
Apprenticeship Millwright 029A, Structural Welding - AWS A	1.5
Apprenticeship Millwright 029B, Structural Welding - AWS B	1.5
Apprenticeship Millwright 030, Rigging Hardware and Procedures	1.5
Apprenticeship Millwright 031, Turbine Familiarization	1.5
Apprenticeship Millwright 032, Pumps	1.5
Apprenticeship Millwright 036A, Machinery Installation and Erection - A	1.5
Apprenticeship Millwright 043, Tool/Equipment Applications	1.5
Select four (4) courses from the following:	6
Apprenticeship Millwright 033, Conveyor Systems (1.5)	
Apprenticeship Millwright 034, Drives, Pulleys and Belts (1.5)	
Apprenticeship Millwright 036B, Machinery Installation and Erection - B (1.5)	
Apprenticeship Millwright 037, Turbine Maintenance (1.5)	
Apprenticeship Millwright 038, Concentrated Photovoltaic Installations (1.5)	
Apprenticeship Millwright 039, Compressor Theory and Maintenance (1.5)	
Apprenticeship Millwright 040, Wind Turbine Installations (1.5)	
Apprenticeship Millwright 051, Solar Installer Level 1 (1.5)	
TOTAL	31.5

Courses

Apprenticeship Millwright 021

Orientation

Unit(s): 2.0

Class Hours: 30 Lecture total, 10 Laboratory total.

Prerequisite: Must be a state-indentured Millwright apprentice.

This course provides an overview of the construction industry for millwrights, 16-hour safety, and green building awareness. Successful students will receive Occupational Safety and Health Administration (OSHA) 10 Certification and United Brotherhood of Carpenters (UBC) Millwright 16-Hour Safety Qualification Cards. Open Entry/Open Exit.

Apprenticeship Millwright 022

Safety and Health Certifications

Unit(s): 2.0

Class Hours: 30 Lecture total, 10 Laboratory total.

Prerequisite: Must be a state-indentured Millwright apprentice.

Apprenticeship Millwright 021.

This course covers the safe and appropriate use of forklift, aerial lift equipment in industrial setting, and emergency response procedures. Upon successful completion, students will be issued First Aid and CPR Certification and UBC Scaffold, Aerial Lift and Forklift Qualification Cards. Open Entry/Open Exit.

Apprenticeship Millwright 023A

Millwright General Skills - A

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured Millwright apprentice.

Apprenticeship Millwright 021 and 022.

Students will identify and use hand and power tools, machining equipment and precision instruments at a fundamental level. Students will complete various bench layout tasks using shop drawings. Open Entry/Open Exit.

Apprenticeship Millwright 023B

Millwright General Skills - B

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured Millwright Apprentice.

Apprenticeship Millwright 021 and 022.

Building on basic machine shop skills, students will use hand and power tools, shop equipment and precision instruments to complete various machining operations. Open Entry/Open Exit.

Apprenticeship Millwright 024

Printreading

Unit(s): 2.0

Class Hours: 30 Lecture total, 10 Laboratory total.

Prerequisite: Must be a state-indentured Millwright apprentice.

Apprenticeship Millwright 021 and 022.

This course introduces basic visualization skills needed for reading and interpreting construction prints. Views, elevations and the role of specifications as they relate to prints will be discussed. Open Entry/Open Exit.

Apprenticeship Millwright 025

Welding Fabrication

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured Millwright apprentice.

Apprenticeship Millwright 021 and 022.

This course is designed as an introduction to layout, and basic welding and fabrication. The students will be introduced to the basic skills of measuring, equipment set-up and cutting, shaping, grinding, welding, filing, heating and bending of metal parts. Open Entry/Open Exit.

Apprenticeship Millwright 026

Cutting and Burning

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured Millwright apprentice.

Apprenticeship Millwright 021 and 022.

This course provides safety instruction, equipment operation, and basic skills needed for successful layout and fabrication of metal parts using an oxy-acetylene torch. Open Entry/Open Exit.

Apprenticeship Millwright 027

Optics and Machinery Alignment

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured Millwright apprentice.

Apprenticeship Millwright 021 and 022.

This course covers the terms, characteristics, and operating principles for the transit and laser levels. Procedures for establishing machinery and equipment elevation and alignment will be demonstrated and practiced. Open Entry/Open Exit.



Apprenticeship Millwright 028 Machinery Shaft Alignment

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured Millwright apprentice.

Apprenticeship Millwright 021 and 022.

This course covers the terms, characteristics, and methods for aligning machine shafts. Conventional dial indicator and computer aided methods will be included in the training. Open Entry/Open Exit.

Apprenticeship Millwright 029A Structural Welding - AWS A

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured Millwright apprentice.

Apprenticeship Millwright 021 and 022.

This course is designed to prepare the student to obtain an American Welding Society (AWS) structural welding certificate per AWS D1.1 Structural Welding Code, the welding of plates that are 1/8" to unlimited thickness. Open Entry/Open Exit.

Apprenticeship Millwright 029B Structural Welding - AWS B

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured Millwright apprentice.

Apprenticeship Millwright 021 and 022.

This course is designed to prepare the student to obtain an AWS structural welding certificate per AWS D1.1 Structural Welding Code, the welding of plates that are 1/8" to unlimited thickness. Practical assignments will include metal inert gas (MIG) and tungsten inert gas (TIG) welding. Open Entry/Open Exit.

Apprenticeship Millwright 030 Rigging Hardware and Procedures

Unit(s): 1.5

Class Hours: 30 Lecture total, 10 Laboratory total.

Prerequisite: Must be a state-indentured Millwright apprentice.

Apprenticeship Millwright 021 and 022.

This course presents both lifting theory and practical rigging methods and procedures. Rigging attachment procedures, lifting equipment, limits of operation and communication practices will be covered. Successful students will receive United Brotherhood of Carpenters (UBC) Rigging Qualification Cards. Open Entry/Open Exit.

Apprenticeship Millwright 031 Turbine Familiarization

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured Millwright apprentice.

Apprenticeship Millwright 021 and 022.

Students will explore the machines and auxiliary equipment used in the power production industry. This course will highlight the function and performance of a typical gas turbine, and will include hydraulic bolting procedures. Open Entry/Open Exit.

Apprenticeship Millwright 032 Pumps

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured Millwright apprentice.

Apprenticeship Millwright 021 and 022.

This course will cover the identification, application, and installation skills for typical systems found in the petro-chemical industry. Demonstrations and practice exercises will focus on pump types, gaskets, seals and fans. Open Entry/Open Exit.

Apprenticeship Millwright 033 Conveyor Systems

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured Millwright apprentice.

Apprenticeship Millwright 021 and 022.

This class will cover proper installation, alignment procedures, belt splicing, and explain how improper installation affects the maintenance and lifespan of equipment and conveyor systems. Open Entry/Open Exit.

Apprenticeship Millwright 034 Drives, Pulleys and Belts

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured Millwright apprentice.

Apprenticeship Millwright 021 and 022.

Installation techniques focusing on power drive systems and equipment arrangements. Key skills presented will include system specifications, component identification and equipment alignment. Shop projects will focus on belt, chain and gear drive installations. Open Entry/Open Exit.

Apprenticeship Millwright 036A Machinery Installation and Erection - A

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured Millwright apprentice.

Apprenticeship Millwright 021 and 022.

As an introduction, students will explore the machinery used in the manufacturing and package handling industry. Component descriptions and machine drawings illustrate the complex details and important considerations for assembly/disassembly tasks. Open Entry/Open Exit.

Apprenticeship Millwright 036B Machinery Installation and Erection - B

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured Millwright apprentice.

Apprenticeship Millwright 021 and 022.

This course will enhance machinery installation skills used in manufacturing applications. Exercises will focus on the importance of machine drawings to identify component tolerances and installation requirements and alignment of parts. Open Entry/Open Exit.

Apprenticeship Millwright 037 Turbine Maintenance

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured Millwright apprentice.

Apprenticeship Millwright 021 and 022.

Students will use machinery maintenance skills and techniques for disassembly/assembly of a typical gas turbine. Couplings, bearings, and rotors will be inspected, and tolerances verified to complete onsite hands-on tasks. Open Entry/Open Exit.

Apprenticeship Millwright 038 Concentrated Photovoltaic Installations

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured Millwright apprentice.

Apprenticeship Millwright 021 and 022.

This course covers the design, function and grid parity of typical concentrated photovoltaic system. The history, technology, types, challenges and costs associated with this renewable energy source installation will be presented. Open Entry/Open Exit.



**Apprenticeship Millwright 039
Compressor Theory and Maintenance**

Unit(s): 1.5
 Class Hours: 20 Lecture total, 20 Laboratory total.
 Prerequisite: Must be a state-indentured Millwright apprentice.
 Apprenticeship Millwright 021 and 022.
 This course will cover the compressor operating principles, safety, assembly, and maintenance skills for industrial compressors. Exercises will focus on the disassembly, inspection, and reassembly of compressor components. Open Entry/Open Exit.

**Apprenticeship Millwright 040
Wind Turbine Installations**

Unit(s): 1.5
 Class Hours: 20 Lecture total, 20 Laboratory total.
 Prerequisite: Must be a state-indentured Millwright apprentice.
 Apprenticeship Millwright 021 and 022.
 This course covers the design and function and installation of wind turbine equipment. The methods, sequences and procedures for housings, bolting, power, drive assembly and other components will be presented. Open Entry/Open Exit.

**Apprenticeship Millwright 041J
Millwright 16 Hour Safety - Journeyworker**

Unit(s): 1.0
 Class Hours: 16 Lecture total.
 Prerequisite: Active Millwright Union Member.
 This course provides an overview of the safety awareness in the millwright construction industry. Upon successful completion, students will be issued OSHA 10 Certification and UBC Millwright 16-Hour Safety Qualification Cards. Grade: Pass/No Pass.

**Apprenticeship Millwright 042J
Human Performance - Journeyworker**

Unit(s): 0.5
 Class Hours: 8 Lecture total.
 Prerequisite: Active Millwright Union Member.
 This course provides an overview of personal and performance awareness for millwright in the construction industry. Upon successful completion, students will be issued OSHA 10 Certification and UBC Human Performance Qualification Cards. Grade: Pass/No Pass.

**Apprenticeship Millwright 043
Tool/Equipment Applications**

Unit(s): 1.5
 Class Hours: 20 Lecture total, 20 Laboratory total.
 Prerequisite: Must be a state-indentured Millwright apprentice.
 Apprenticeship Millwright 021 and 022.
 This course promotes hand/power tool and equipment skill development for various construction applications. Scaffold building and aerial lift safety and operating procedures will also be covered. Upon successful completion, students will be issued United Brotherhood of Carpenters (UBC) Aerial Lift and Scaffold Erector-Welded Frame Qualification Cards. Open Entry/Open Exit.

**Apprenticeship Millwright 051
Solar Installer Level 1**

Unit(s): 1.5
 Class Hours: 20 Lecture total, 20 Laboratory total.
 Prerequisite: Must be a state-indentured Millwright apprentice.
 Apprenticeship Millwright 021 and 022.
 This course covers the design and function of several types of solar installation. The methods, sequences and procedures for mounting layout, elevation/positioning, and assembly for solar construction will be presented to apprentices. Open Entry/Open Exit.

**Apprenticeship Millwright 051J
Solar Installer Level 1 - Journeyworker**

Unit(s): 1.5
 Class Hours: 20 Lecture total, 20 Laboratory total.
 Prerequisite: Active Carpenter Union Member.
 This course covers the design and function of several types of solar installation. The methods, sequences and procedures for mounting layout, elevation/positioning, and assembly for solar construction will be presented. Grade: Pass/No Pass.



APPRENTICESHIP MODULAR FURNISHINGS INSTALLATION (AMF)

Courses

Apprenticeship Modular Furnishings Installation 021

Orientation

Unit(s): 2.0

Class Hours: 30 Lecture total, 10 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course provides an overview of the construction industry, safety, and green building awareness. Upon successful completion, students will receive Occupational Safety and Health Administration (OSHA) 10 Hour and Powder Actuated Tool Certifications, and United Brotherhood of Carpenters (UBC) Fall Protection Qualification Card. Open Entry/Open Exit.

Apprenticeship Modular Furnishings Installation 022

Safety and Health Certifications

Unit(s): 2.0

Class Hours: 30 Lecture total, 10 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course covers the safe and appropriate use of scaffolds, aerial lift and fork lift equipment, and emergency response procedures. Upon successful completion, students will be issued American Red Cross First Aid/CPR Certifications, and United Brotherhood of Carpenters (UBC) Scaffold, Aerial Lift and Forklift Qualification Cards. Open Entry/Open Exit.

Apprenticeship Modular Furnishings Installation 023

Modular Cabinets, Doors and Drawers

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course details cabinetry fabrication from design and function through the complete production process. Students will use the methods and procedures presented to build a typical base unit. Open Entry/Open Exit.

Apprenticeship Modular Furnishings Installation 023C

Tool/Equipment Applications

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice. Apprenticeship Modular Furnishings Installation 021 and 022.

This course promotes hand/power tool and equipment skill development for various construction applications used in the installation of modular furnishings. Scaffold building and Aerial lift safety and operating procedures will also be covered. Upon successful completion, students will be issued United Brotherhood of Carpenters (UBC) Aerial Lift and Scaffold Erector-Welded Frame Qualification Cards. Open Entry/Open Exit.

Apprenticeship Modular Furnishings Installation 024

Introduction to Modular Furnishing

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course introduces the students to modular furnishing design concepts. Students will identify the elements that are incorporated into a basic educational design for functionality, productivity and durability. Open Entry/Open Exit.

Apprenticeship Modular Furnishings Installation 025

Educational and Seismic Installations

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course showcases modern modular furnishing designs for creating interactive educational spaces. In addition, students will be presented with state and local seismic codes, and those that are site specific for schools, hospitals and/or required by building engineers. Open Entry/Open Exit.

Apprenticeship Modular Furnishings Installation 026

Hospital Modular Installations

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Modular furnishing design concepts for hospital environments will be a focus of this course. Students will identify job planning and 'best practices' procedures to facilitate special requirements for installations in the healthcare industry. Multi-Station layouts, components, specialty accessories, and finishes will be included. Open Entry/Open Exit.

Apprenticeship Modular Furnishings Installation 029

Wall and Overhead Attachments

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

This course will highlight the use of various wall and overhead attachments and explain how they are integrated into the modular designed space. Students will identify the wall and overhead elements that are incorporated into a multi-station design using selected manufacturers' products. Open Entry/Open Exit.

Apprenticeship Modular Furnishings Installation 030

Crew Lead Customer Service Training

Unit(s): 2.5

Class Hours: 40 Lecture total.

Prerequisite: Must be a state-indentured apprentice.

This course covers the supervisory and crew leadership skills required for professional development in the modular furnishing industry. An emphasis will be placed on the importance of providing excellent customer service. Open Entry/Open Exit.

Apprenticeship Modular Furnishings Installation 031

Modular Glass: Handling and Installation

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice. Apprenticeship Modular Furnishings Installation 021 and 022.

This course covers the applications, methods, and procedures required to install modular glass products. Learn hands-on practice using proper tools, product handling techniques and appropriate sequence of installation will provide students with fundamental skills. Open Entry/Open Exit.

Apprenticeship Modular Furnishings Installation 032

Basic Framing and Retro-Fits

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice. Apprenticeship Modular Furnishings Installation 021 and 022.

This course presents the methods and procedures required to frame basic walls for retro-fit of modular interior spaces. Hands-on practice using proper tool techniques and materials will provide experience in the framing and finishing of a basic wall. Open Entry/Open Exit.



**Apprenticeship Modular Furnishings Installation 034
Solid Surface and Stone Countertops**

Unit(s): 1.5

Class Hours: 20 Lecture total, 20 Laboratory total.

Prerequisite: Must be a state-indentured apprentice. Apprenticeship Modular Furnishings Installation 021 and 022.

This course covers both basic and advanced assembly and installation techniques for solid surface, natural stone and manufactured materials. Various products, designs, materials, accessories, and safety considerations will be included. Students will use the procedures presented to fabricate countertops with backsplash, and create a design inlay. Open Entry/Open Exit.

APPRENTICESHIP OPERATING ENGINEERS (AOE)

Division of Business and Career Technical Education

Dean: Von Lawson

**Apprenticeship Operating Engineers-
Construction Safety Inspector**

The Associate of Science degree and Certificate of Achievement in Apprenticeship Operating Engineers Construction Safety Inspector provide the related and supplemental instruction required for state-indentured operating engineer apprentices. Construction Safety Inspectors perform the equipment and jobsite inspections that ensure safe and proper procedures and regulations are being followed. Interested apprentices should contact the Operating Engineers Joint Apprenticeship and Training Committee and the Apprenticeship Office at Santiago Canyon College. Successful completion may result in journeyworker status, and OSHA 10, OSHA 30, CPR and First Aid certification.

**Associate of Science
Construction Safety Inspector (31503)**

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Meet the related and supplemental instruction requirements for operating engineer apprentices to become journeyworkers.
- Have a foundation for furthering their college education.

Major requirements*	Units
Apprenticeship Operating Engineers 011, Construction Safety Inspector Apprentice 1	4
Apprenticeship Operating Engineers 012, Construction Safety Inspector Apprentice 2	4
Apprenticeship Operating Engineers 013, Construction Safety Inspector Apprentice 3	4
Apprenticeship Operating Engineers 014, Construction Safety Inspector Apprentice 4	4
Apprenticeship Operating Engineers 015, Construction Safety Inspector Apprentice 5	4
Apprenticeship Operating Engineers 016, Construction Safety Inspector Apprentice 6	4
TOTAL	24

**Certificate of Achievement
Construction Safety Inspector (31574)**

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Meet the related and supplemental instruction requirements for operating engineer apprentices to become journeyworkers.
- Have a foundation for furthering their college education.

Certificate requirements	Units
Apprenticeship Operating Engineers 011, Construction Safety Inspector Apprentice 1	4
Apprenticeship Operating Engineers 012, Construction Safety Inspector Apprentice 2	4
Apprenticeship Operating Engineers 013, Construction Safety Inspector Apprentice 3	4
Apprenticeship Operating Engineers 014, Construction Safety Inspector Apprentice 4	4
Apprenticeship Operating Engineers 015, Construction Safety Inspector Apprentice 5	4
Apprenticeship Operating Engineers 016, Construction Safety Inspector Apprentice 6	4
TOTAL	24

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Apprenticeship Operating Engineers- Heavy Duty Repairer

The Associate of Science degree and Certificate of Achievement in Apprenticeship Operating Engineers Heavy Duty Repairer provide the required related and supplemental instruction for state-indentured operating engineer apprentices. Interested apprentices should contact the Operating Engineers Joint Apprenticeship and Training Committee and the Apprenticeship Office at Santiago Canyon College. Successful completion may result in journeyworker status.

Associate of Science Heavy Duty Repairer (17687)

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Begin a career as a journeyworker operating engineer.
- Have a basis for further college education.

Major requirements*	Units
Apprenticeship Operating Engineers 031, Heavy Duty Repairer 1	4
Apprenticeship Operating Engineers 032, Heavy Duty Repairer 2	4
Apprenticeship Operating Engineers 033, Hydraulics	4
Apprenticeship Operating Engineers 034, Advanced Hydraulics	4
Apprenticeship Operating Engineers 035, Heavy Duty Repairer 5	4
Apprenticeship Operating Engineers 036, Disassembly and Assembly	4
TOTAL	24

Certificate of Achievement Heavy Duty Repairer (21654)

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Begin a career as a journeyworker operating engineer.
- Have a basis for further college education.

Certificate requirements	Units
Apprenticeship Operating Engineers 031, Heavy Duty Repairer 1	4
Apprenticeship Operating Engineers 032, Heavy Duty Repairer 2	4
Apprenticeship Operating Engineers 033, Hydraulics	4
Apprenticeship Operating Engineers 034, Advanced Hydraulics	4
Apprenticeship Operating Engineers 035, Heavy Duty Repairer 5	4
Apprenticeship Operating Engineers 036, Disassembly and Assembly	4
TOTAL	24

Apprenticeship Operating Engineers- Heavy Equipment/Landscape Operator Engineer

The Associate of Science degree and Certificate of Achievement in Apprenticeship Operating Engineers Heavy Equipment/Landscape Operator Engineer provide the related and supplemental instruction required for state-indentured apprentices. Heavy equipment/landscape operator engineers are highly trained, skilled professionals who operate heavy construction equipment on high-rise buildings, roads, and freeways. Interested apprentices should contact the Operating Engineers Apprenticeship Training Trust and the Apprenticeship Office at Santiago Canyon College. Successful completion may result in journeyworker status.

Associate of Science Heavy Equipment/Landscape Operator Engineer (11983)

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Begin a career as a journeyworker operating engineer.
- Have a basis for further college education.

Major requirements*	Units
Apprenticeship Operating Engineers 041, Introduction to Apprenticeship	4
Apprenticeship Operating Engineers 042, Grade Checking	4
Apprenticeship Operating Engineers 043, Equipment Operator 3	4
Apprenticeship Operating Engineers 044, Plan Reading	4
Apprenticeship Operating Engineers 045, Equipment Operator 5	4
Apprenticeship Operating Engineers 046, Hazmat 6	4
TOTAL	24

Certificate of Achievement Heavy Equipment/Landscape Operator Engineer (21655)

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Begin a career as a journeyworker operating engineer.
- Have a basis for further college education.

Certificate requirements	Units
Apprenticeship Operating Engineers 041, Introduction to Apprenticeship	4
Apprenticeship Operating Engineers 042, Grade Checking	4
Apprenticeship Operating Engineers 043, Equipment Operator 3	4
Apprenticeship Operating Engineers 044, Plan Reading	4
Apprenticeship Operating Engineers 045, Equipment Operator 5	4
Apprenticeship Operating Engineers 046, Hazmat 6	4
TOTAL	24



Apprenticeship Operating Engineers-Plant Equipment/Rock, Sand and Gravel

The Associate of Science degree and Certificate of Achievement in Apprenticeship Operating Engineers Plant Equipment/Rock, Sand and Gravel provide the required related and supplemental instruction for state-indentured operating engineer apprentices. Interested apprentices should contact the Operating Engineers Joint Apprenticeship and Training Committee and the Apprenticeship Office at Santiago Canyon College. Successful completion may result in journeyworker status.

**Associate of Science
Plant Equipment/Rock, Sand and Gravel (17686)**

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Begin a career as a journeyworker operating engineer.
- Have a basis for further college education.

Major requirements*	Units
Apprenticeship Operating Engineers 021, Plant Equipment Operator 1	4
Apprenticeship Operating Engineers 022, Plant Equipment Operator 2	4
Apprenticeship Operating Engineers 023, Plant Equipment Operator 3	4
Apprenticeship Operating Engineers 024, Plant Equipment Operator 4	4
Apprenticeship Operating Engineers 025, Plant Equipment Operator 5	4
Apprenticeship Operating Engineers 026, Plant Equipment Operator 6	4
TOTAL	24

**Certificate of Achievement
Plant Equipment/Rock, Sand and Gravel (21656)**

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Begin a career as a journeyworker operating engineer.
- Have a basis for further college education.

Certificate requirements	Units
Apprenticeship Operating Engineers 021, Plant Equipment Operator 1	4
Apprenticeship Operating Engineers 022, Plant Equipment Operator 2	4
Apprenticeship Operating Engineers 023, Plant Equipment Operator 3	4
Apprenticeship Operating Engineers 024, Plant Equipment Operator 4	4
Apprenticeship Operating Engineers 025, Plant Equipment Operator 5	4
Apprenticeship Operating Engineers 026, Plant Equipment Operator 6	4
TOTAL	24

Apprenticeship Operating Engineers-Special Inspector

The Associate of Science degree and Certificate of Achievement in Apprenticeship Operating Engineers Special Inspector provide the required related and supplemental instruction for state-indentured operating engineer apprentices. Interested apprentices should contact the Operating Engineers Joint Apprenticeship and Training Committee and the Apprenticeship Office at Santiago Canyon College. Successful completion may result in journeyworker status.

**Associate of Science
Special Inspector (17688)**

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Begin a career as a journeyworker operating engineer.
- Have a basis for further college education.

Major requirements*	Units
Apprenticeship Operating Engineers 075A, Soils Inspection and Testing	4
Apprenticeship Operating Engineers 076A, Structural Plan Reading for Inspectors	4
Select four (4) courses from the following:	16
Apprenticeship Operating Engineers 071A, Reinforced Concrete (4)	
Apprenticeship Operating Engineers 072A, Prestressed Concrete (4)	
Apprenticeship Operating Engineers 073A, Structural Steel/Welding (4)	
Apprenticeship Operating Engineers 074A, Structural Masonry (4)	
Apprenticeship Operating Engineers 077A, ICC Soils Special Inspector (4)	
TOTAL	24

**Certificate of Achievement
Special Inspector (21665)**

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Begin a career as a journeyworker operating engineer.
- Have a basis for further college education.

Certificate requirements	Units
Apprenticeship Operating Engineers 075A, Soils Inspection and Testing	4
Apprenticeship Operating Engineers 076A, Structural Plan Reading for Inspectors	4
Select four (4) courses from the following:	16
Apprenticeship Operating Engineers 071A, Reinforced Concrete (4)	
Apprenticeship Operating Engineers 072A, Prestressed Concrete (4)	
Apprenticeship Operating Engineers 073A, Structural Steel/Welding (4)	
Apprenticeship Operating Engineers 074A, Structural Masonry (4)	
Apprenticeship Operating Engineers 077A, ICC Soils Special Inspector (4)	
TOTAL	24

Courses

**Apprenticeship Operating Engineers 011
Construction Safety Inspector Apprentice 1**

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction required for operating engineer apprentices in CPR, first aid, safety and safety forms. Open Entry/Open Exit.

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



**Apprenticeship Operating Engineers 012
Construction Safety Inspector Apprentice 2**

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction required for operating engineer apprentices in OSHA, Hazwoper, confined space, and lockout tagout procedures. Open Entry/Open Exit.

**Apprenticeship Operating Engineers 013
Construction Safety Inspector Apprentice 3**

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction required for operating engineer apprentices in asbestos, fall protection, heat stress and cold stress. Open Entry/Open Exit.

**Apprenticeship Operating Engineers 014
Construction Safety Inspector Apprentice 4**

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction required for operating engineer apprentices in respiratory competency training, trenching, shoring and excavation, crane regulations, wire rope and rigging, and man lift safety. Open Entry/Open Exit.

**Apprenticeship Operating Engineers 015
Construction Safety Inspector Apprentice 5**

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction required for operating engineer apprentices in the MSHA (Mine Safety and Health Administration), equipment safety inspection, and homeland security. Open Entry/Open Exit.

**Apprenticeship Operating Engineers 016
Construction Safety Inspector Apprentice 6**

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction for operating engineer apprentices in safety program protocol, emergency response protocol, and the duties and responsibilities of the safety inspector. Open Entry/Open Exit.

**Apprenticeship Operating Engineers 021
Plant Equipment Operator 1**

Unit(s): 4.0

Class Hours: 40 Lecture total, 72 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction required for Operating Engineer Apprentices in safety, first aid, industry terminology, operation and maintenance of equipment used in the aggregate processing industry; emphasis on preventive maintenance. Open Entry/Open Exit.

**Apprenticeship Operating Engineers 021J
Plant Equipment Operator 1 - Journeyworker**

Unit(s): 4.0

Class Hours: 40 Lecture total, 72 Laboratory total.

Prerequisite: Active Union Member.

Provides journeyworkers instruction required for Operating Engineers in safety, first aid, industry terminology, operation and maintenance of equipment used in the aggregate processing industry; emphasis on preventive maintenance. This course explores advanced topics and focuses on specific types of equipment used in various situations. Grade: Pass/No Pass.

**Apprenticeship Operating Engineers 022
Plant Equipment Operator 2**

Unit(s): 4.0

Class Hours: 40 Lecture total, 72 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction required for Operating Engineer Apprentices in the safe use of oxyacetylene cutting equipment, the technique of brazing and electric arc welding. Open Entry/Open Exit.

**Apprenticeship Operating Engineers 022J
Plant Equipment Operator 2 - Journeyworker**

Unit(s): 4.0

Class Hours: 40 Lecture total, 72 Laboratory total.

Prerequisite: Active Union Member.

Provides journeyworkers instruction required for Operating Engineers in the safe use of oxyacetylene cutting equipment, the technique of brazing and electric arc welding. This course explores advanced topics and focuses on specific types of equipment used in various situations. Grade: Pass/No Pass.

**Apprenticeship Operating Engineers 023
Plant Equipment Operator 3**

Unit(s): 4.0

Class Hours: 40 Lecture total, 72 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction required for Operating Engineers Apprentices in safety practices, pre-shift inspection, lubrication, maintenance and heavy equipment operation. Introduce the Apprentice to Green Technologies pertaining to this field. Emphasizes practical experience in performing the work processes. Open Entry/Open Exit.

**Apprenticeship Operating Engineers 023J
Plant Equipment Operator 3 - Journeyworker**

Unit(s): 4.0

Class Hours: 40 Lecture total, 72 Laboratory total.

Prerequisite: Active Union Member.

Provides the journeyworker instruction required for Operating Engineers in safety practices, pre-shift inspection, lubrication, maintenance and heavy equipment operation. Introduce the Journeyworker to Green Technologies pertaining to this field. Emphasizes practical experience in performing the work processes. This course explores advanced topics and focuses on specific types of equipment used in various situations. Grade: Pass/No Pass.

**Apprenticeship Operating Engineers 024
Plant Equipment Operator 4**

Unit(s): 4.0

Class Hours: 40 Lecture total, 72 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction required for Operating Engineer Apprentices in pneumatics, power hydraulics, filtration, piping/sealing devices and electricity, emphasizing troubleshooting three phase industrial motor control systems. Open Entry/Open Exit.

**Apprenticeship Operating Engineers 024J
Plant Equipment Operator 4 - Journeyworker**

Unit(s): 4.0

Class Hours: 40 Lecture total, 72 Laboratory total.

Prerequisite: Active Union Member.

Provides the Journeyworker instruction required for Operating Engineer in pneumatics, power hydraulics, filtration, piping/sealing devices and electricity, emphasizing troubleshooting three phase industrial motor control systems. This course explores advanced topics and focuses on specific types of equipment used in various situations. Grade: Pass/No Pass.



**Apprenticeship Operating Engineers 025
Plant Equipment Operator 5**

Unit(s): 4.0

Class Hours: 40 Lecture total, 72 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction required for Operating Engineer Apprentices in disassembly, diagnosis, repair, assembly/adjustment of cone crushers, screens, separators and belt conveyors. Open Entry/Open Exit.

**Apprenticeship Operating Engineers 025J
Plant Equipment Operator 5 - Journeyworker**

Unit(s): 4.0

Class Hours: 40 Lecture total, 72 Laboratory total.

Prerequisite: Active Union Member.

Provides the journeyworker instruction required for Operating Engineers in disassembly, diagnosis, repair, assembly/adjustment of cone crushers, screens, separators and belt conveyors. This course explores advanced topics and focuses on specific types of equipment used in various situations. Grade: Pass/No Pass.

**Apprenticeship Operating Engineers 026
Plant Equipment Operator 6**

Unit(s): 4.0

Class Hours: 40 Lecture total, 72 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction required for Operating Engineer Apprentices in the operation of asphalt/concrete plants, material handling, storage, batching tolerances and electrical controls. Ability to identify and service gasoline and diesel engines. Open Entry/Open Exit.

**Apprenticeship Operating Engineers 026J
Plant Equipment Operator 6 - Journeyworker**

Unit(s): 4.0

Class Hours: 40 Lecture total, 72 Laboratory total.

Prerequisite: Active Union Member.

Provides the journeyworker instruction required for Operating Engineer in the operation of asphalt/concrete plants, material handling, storage, batching tolerances and electrical controls. Ability to identify and service gasoline and diesel engines. This course explores advanced topics and focuses on specific types of equipment used in various situations. Grade: Pass/No Pass.

**Apprenticeship Operating Engineers 031
Heavy Duty Repairer 1**

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction required for operating engineer apprentices in safe work practices and principles when working around or operating heavy equipment, the purposes of organized labor, labor history, first aid, Local 12 structure, Labor-Management Agreement, Local 12 By-Laws, International Union of Operating Engineers (IUOE) Constitution, basic machinery maintenance. Open Entry/Open Exit.

**Apprenticeship Operating Engineers 032
Heavy Duty Repairer 2**

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction required for operating engineer apprentices in the basic safety practices and principles in the use of oxyacetylene cutting equipment, the technique of brazing, and electric arc welding. Open Entry/Open Exit.

**Apprenticeship Operating Engineers 033
Hydraulics**

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction required for operating engineer apprentices in the principles of hydraulics, how a hydraulic system works, and the practical uses of hydraulics. Open Entry/Open Exit.

**Apprenticeship Operating Engineers 034
Advanced Hydraulics**

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction required for operating engineer apprentices in hydraulic systems, pneumatic systems, and electrical/electronic systems used on heavy equipment and trucks. Open Entry/Open Exit.

**Apprenticeship Operating Engineers 035
Heavy Duty Repairer 5**

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction required for operating engineer apprentices in the basic safety practices and proper maintenance procedures when working around gasoline and/or diesel engines. Specific topics include: internal combustion engine theory for both diesel and gasoline engines; use of appropriate hand tools needed for engine repair; applying proper procedures for engine disassembly and assembly; and troubleshooting and diagnosing engine failures. Open Entry/Open Exit.

**Apprenticeship Operating Engineers 036
Disassembly and Assembly**

Unit(s): 4.0

Class Hours: 52 Lecture total, 52 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction required for operating engineer apprentices in the basic safety aspects and procedures when working around heavy components of heavy equipment. Specific components include: clutches, mechanical transmissions, differentials, final drives, crawler tractor undercarriage, and crawler tractor truck assemblies. Open Entry/Open Exit.

**Apprenticeship Operating Engineers 041
Introduction to Apprenticeship**

Unit(s): 4.0

Class Hours: 52 Lecture total, 52 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides related and supplemental instruction for state-indentured apprentices employed full-time in the operating engineers trade. Covers basic safety procedures when working around heavy equipment; proper attitudes and ethics; procedures for setting a string-line; work practices for cranes; proper maintenance procedures on heavy equipment; history of organized labor; inner workings and benefits of being a member of a local union. Open Entry/Open Exit.

**Apprenticeship Operating Engineers 042
Grade Checking**

Unit(s): 4.0

Class Hours: 52 Lecture total, 52 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides related and supplemental instruction for state-indentured apprentices employed full-time in the operating engineers field. Covers information found on typical grading stakes; using colored ribbons on grade stakes; transferring elevations from one point to another; setting grading stakes for both cut and fill slopes; grading stakes for curb and streets; staking procedures for subdivisions; basic laser set-up; basic GPS set-up. Open Entry/Open Exit.



Apprenticeship Operating Engineers 043 Equipment Operator 3

Unit(s): 4.0

Class Hours: 52 Lecture total, 52 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides related and supplemental instruction for state-indentured apprentices employed full-time in the operating engineers field. Covers preventive maintenance and operation of heavy equipment. Open Entry/Open Exit.

Apprenticeship Operating Engineers 044 Plan Reading

Unit(s): 4.0

Class Hours: 52 Lecture total, 52 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides related and supplemental instruction for state-indentured apprentices employed full-time in the operating engineers field. Covers reading and interpreting grading plans for highways, streets and subdivisions. Open Entry/Open Exit.

Apprenticeship Operating Engineers 045 Equipment Operator 5

Unit(s): 4.0

Class Hours: 52 Lecture total, 52 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides related and supplemental instruction for state-indentured apprentices employed full-time in the operating engineer field. Covers preventive maintenance and operation of heavy equipment. Open Entry/Open Exit.

Apprenticeship Operating Engineers 046 Hazmat 6

Unit(s): 4.0

Class Hours: 52 Lecture total, 52 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides related and supplemental instruction for state-indentured apprentices employed full-time in the operating engineer field. Covers basic safety for a worker on a hazardous materials project, first aid/CPR, OSHA safety topics. Apprentices successfully completing this course will receive three certifications: HAZWOPER, Red Cross First Aid/CPR and Occupational Safety and Health Administration (OSHA). Open Entry/Open Exit.

Apprenticeship Operating Engineers 047 Operating Engineers Hazmat 40

Unit(s): 2.0

Class Hours: 28 Lecture total, 12 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Safety regulations, safe work practices for hazardous waste site operations as specified by 29th code of Federal Regulations, 1910.120 as approved by National Institute of Environmental Safety and Health for the International Union of Operating Engineers, for required certification. Grade: Pass/No Pass. Open Entry/Open Exit.

Apprenticeship Operating Engineers 048 Disaster Site Worker

Unit(s): 0.5

Class Hours: 8 Lecture total, 4 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Recognizing safety hazards, health hazards, chemical, biological, radiological and nuclear defense (CBRNE) agents. Management techniques of traumatic incident stress awareness. Proper respiratory protection, personal protective equipment, decontamination procedure. Grade: Pass/No Pass. Open Entry/Open Exit.

Apprenticeship Operating Engineers 049 OSHA Construction Training

Unit(s): 0.5-9.0

Class Hours: 10-150 Lecture total.

Prerequisite: Must be a state-indentured apprentice.

Provides a variety of training on construction safety and health issues including hazard identification, avoidance, control, and prevention. Grade: Pass/No Pass. Open Entry/Open Exit.

Apprenticeship Operating Engineers 051 Operating Engineers Hazmat 8

Unit(s): 0.5-12.5

Class Hours: 8-200 Lecture total.

Prerequisite: Must be a state-indentured apprentice.

Refresher courses in hazmat for mandatory certification required to work hazardous waste sites as specified by 29th code of Federal Regulations 1910.120 as approved by National Institute of Environmental Safety and Health for International Union of Operating Engineers. Grade: Pass/No Pass. Open Entry/Open Exit.

Apprenticeship Operating Engineers 052 Mobile Cranes

Unit(s): 1.0-15.0

Class Hours: 20-240 Lecture total.

Prerequisite: Must be a state-indentured apprentice.

Pre-operational inspections, operational inspections, capacity charts, setting up cranes, rigging, signals, common operational hazards, public awareness, professional responsibility. Prepares students for Operating Engineers Crane Operators' Performance test. Grade: Pass/No Pass. Open Entry/Open Exit.

Apprenticeship Operating Engineers 053 Special Inspector Education

Unit(s): 1.0-12.0

Class Hours: 16-192 Lecture total.

Prerequisite: Must be a state-indentured apprentice.

Duties and responsibilities of the special inspector. Materials and testing of structural masonry, concrete, reinforcement, post-testing concrete. Resisting forces induced by seismic action. Understand and recognize code changes. Grade: Pass/No Pass. Open Entry/Open Exit.

Apprenticeship Operating Engineers 054 Tower Crane

Unit(s): 1.0

Class Hours: 16 Lecture total, 16 Laboratory total.

Prerequisite: Must be a state-indentured apprentice or journey-worker.

Provides instruction and training for operating engineers in tower cranes. Covers terminology, basic principles, regulatory agencies, and safety involved with tower crane operation. Grade: Pass/No Pass. Open Entry/Open Exit.

Apprenticeship Operating Engineers 061 Concrete Transportation Construction Inspector

Unit(s): 4.0

Class Hours: 40 Lecture total, 74 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides related and supplemental instruction for apprentices in the Operating Engineers field in concrete transportation construction inspections. Covers transportation systems and applications, preliminary testing, pre-placement inspection, placement inspection, post-placement inspection. Open Entry/Open Exit.



**Apprenticeship Operating Engineers 062
Asphalt Inspection**

Unit(s): 4.0
Class Hours: 40 Lecture total, 74 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Provides related and supplemental instruction for apprentices in the Operating Engineers field in asphalt inspection. Covers materials inspection, mix design, plant operations, placing operations, compaction, report writing, plan reading, and grade checking. Open Entry/Open Exit.

**Apprenticeship Operating Engineers 063A
ACI Laboratory Testing Technician I**

Unit(s): 4.0
Class Hours: 40 Lecture total, 74 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Provides the required related and supplemental instruction for operating engineer apprentices in laboratory testing on aggregates used for structural concrete. Open Entry/Open Exit.

**Apprenticeship Operating Engineers 064A
ACI Laboratory Testing Technician II**

Unit(s): 4.0
Class Hours: 40 Lecture total, 74 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Provides the required related and supplemental instruction for operating engineer apprentices in design parameters for batching structural concrete. Open Entry/Open Exit.

**Apprenticeship Operating Engineers 071A
Reinforced Concrete**

Unit(s): 4.0
Class Hours: 40 Lecture total, 72 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Provides the required related and supplemental instruction for operating engineer apprentices in codes and duties, reinforcing steel, blueprinting reading, gunite, report writing, people skills. Apprentices will gain the knowledge, research skills and confidence needed to pass their written and oral exams. Open Entry/Open Exit.

**Apprenticeship Operating Engineers 072A
Prestressed Concrete**

Unit(s): 4.0
Class Hours: 40 Lecture total, 72 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Provides the required related and supplemental instruction for operating engineer apprentices in reinforcing steel, codes, blueprints, stressing sheets, plan changes, report writing, people skills, job etiquette and protocol. Apprentices will gain the knowledge, research skills and confidence needed to pass their written and oral exams. Open Entry/Open Exit.

**Apprenticeship Operating Engineers 073A
Structural Steel/Welding**

Unit(s): 4.0
Class Hours: 40 Lecture total, 72 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Provides the required related and supplemental instruction for operating engineer apprentices in codes and duties, welding, report writing, people skills, gunite applications. Apprentices will gain the knowledge, research skills and confidence needed to pass their written and oral exams. Open Entry/Open Exit.

**Apprenticeship Operating Engineers 074A
Structural Masonry**

Unit(s): 4.0
Class Hours: 40 Lecture total, 72 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Provides the required related and supplemental instruction for operating engineer apprentices in codes and duties, reinforcing steel, plan changes, people skills, jobsite etiquette and protocol, Specialty Inspector. Apprentices will gain the knowledge, research skills and confidence needed to pass their written and oral exams. Open Entry/Open Exit.

**Apprenticeship Operating Engineers 075A
Soils Inspection and Testing**

Unit(s): 4.0
Class Hours: 40 Lecture total, 74 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Provides the required related and supplemental instruction for operating engineer apprentices in codes and duties, calibration procedures, soil identification, methods of moisture determination, maximum density tests, sand cone testing, nuclear density testing, people skills, sieve analysis, proper vehicle setup. Apprentices will gain the knowledge, research skills and confidence needed to pass their written and oral exams. Open Entry/Open Exit.

**Apprenticeship Operating Engineers 076A
Structural Plan Reading for Inspectors**

Unit(s): 4.0
Class Hours: 40 Lecture total, 74 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Provides the related and supplemental instruction required for operating engineer apprentices in structural plan reading, interpretation of structural layout and design engineering for inspectors. Design, printing, and preparation guidelines as detailed in the Uniform Building Code (UBC). Open Entry/Open Exit.

**Apprenticeship Operating Engineers 077A
ICC Soils Special Inspector**

Unit(s): 4.0
Class Hours: 40 Lecture total, 72 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Provides the required related and supplemental instruction required for operating engineer apprentices in the general requirements, laboratory testing, grading plans, site preparation, and fill monitoring techniques used for International Code Council (ICC) Soils Inspections. Open Entry/Open Exit.

**Apprenticeship Operating Engineers 079
Certified Welding Inspector**

Unit(s): 3.0
Class Hours: 36 Lecture total, 36 Laboratory total.
Prerequisite: Must be a state-indentured apprentice or journey-worker.
Provides the instruction necessary to become a Certified Welding Inspector. Topics include welding processes, heat control, welding inspections and flaws, definitions and terminology, utilization of specifications and drawings, safety, testing methods. Open Entry/Open Exit.

**Apprenticeship Operating Engineers 080
Structural Concrete Plan Reading**

Unit(s): 3.0
Class Hours: 36 Lecture total, 36 Laboratory total.
Prerequisite: Must be a state indentured apprentice or journey-worker.
Provides instruction for operating engineers in the design and engineering requirements of structural buildings and the fundamentals of structural concrete. Open Entry/Open Exit.



Apprenticeship Operating Engineers 081 Structural Reinforced Concrete for Inspectors

Unit(s): 3.0

Class Hours: 36 Lecture total, 36 Laboratory total.

Prerequisite: Must be a state-indentured apprentice or journey-worker.

Provides instruction for operating engineers in reinforced concrete inspection, structural plans and structural code. Prepares students for the 3 1/2 hour International Code Council reinforced concrete certification exams. Open Entry/Open Exit.

APPRENTICESHIP POWER LINEMAN (APL)

Division of Business and Career Technical Education

Dean: Von Lawson

Apprenticeship-Power Lineman

The Associate of Science degree and Certificate of Achievement in Apprenticeship for Power Lineman provide the required related and supplemental instruction for power lineman apprentices. The work of the power lineman involves installing and maintaining power poles, erecting steel towers, stringing wire, building substations, climbing power poles and installing underground and street lighting systems. It's highly skilled work that requires a great deal of concentration, dexterity, and knowledge. Interested apprentices should contact the California-Nevada Joint Apprentice Training Committee and the Apprenticeship Office at Santiago Canyon College.

Associate of Science Power Lineman (11981)

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Begin a career as a journeyworker power lineman.
- Have a basis for further college education.

Major requirements*	Units
Apprenticeship Power Lineman 020, Orientation	3
Apprenticeship Power Lineman 021, Power Lineman Apprentice 1	3
Apprenticeship Power Lineman 022, Power Lineman Apprentice 2	3
Apprenticeship Power Lineman 023, Power Lineman Apprentice 3	3
Apprenticeship Power Lineman 024, Power Lineman Apprentice 4	3
Apprenticeship Power Lineman 025, Power Lineman Apprentice 5	3
Apprenticeship Power Lineman 026, Power Lineman Apprentice 6	3
Apprenticeship Power Lineman 041, Work Methods Training	1
Apprenticeship Power Lineman 042, Rubber Gloves Training	1
Apprenticeship Power Lineman 043, Hot Sticks Training	1
TOTAL	24

Certificate of Achievement Power Lineman (21652)

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Begin a career as a journeyworker power lineman.
- Have a basis for further college education.

Certificate requirements	Units
Apprenticeship Power Lineman 020, Orientation	3
Apprenticeship Power Lineman 021, Power Lineman Apprentice 1	3
Apprenticeship Power Lineman 022, Power Lineman Apprentice 2	3
Apprenticeship Power Lineman 023, Power Lineman Apprentice 3	3
Apprenticeship Power Lineman 024, Power Lineman Apprentice 4	3
Apprenticeship Power Lineman 025, Power Lineman Apprentice 5	3
Apprenticeship Power Lineman 026, Power Lineman Apprentice 6	3
Apprenticeship Power Lineman 041, Work Methods Training	1
Apprenticeship Power Lineman 042, Rubber Gloves Training	1
Apprenticeship Power Lineman 043, Hot Sticks Training	1
TOTAL	24

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Courses

Apprenticeship Power Lineman 020

Orientation

Unit(s): 3.0

Class Hours: 32 Lecture total, 48 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides related and supplemental instruction required for entry-level apprentice power linemen. Grade: Pass/No Pass.

Apprenticeship Power Lineman 021

Power Lineman Apprentice 1

Unit(s): 3.0

Class Hours: 32 Lecture total, 48 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction required for entry-level power lineman apprentices in the tools, math, theory, and safety required in the power lineman industry. Grade: Pass/No Pass.

Apprenticeship Power Lineman 022

Power Lineman Apprentice 2

Unit(s): 3.0

Class Hours: 32 Lecture total, 48 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction in the theory, math, construction methods, and safety required for the second-level power lineman apprentice. Grade: Pass/No Pass.

Apprenticeship Power Lineman 023

Power Lineman Apprentice 3

Unit(s): 3.0

Class Hours: 32 Lecture total, 48 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction for third-level power lineman apprentice with emphasis on circuits energized below 750 volts, tower erection, and street lighting systems. Grade: Pass/No Pass.

Apprenticeship Power Lineman 024

Power Lineman Apprentice 4

Unit(s): 3.0

Class Hours: 32 Lecture total, 48 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction for the fourth-level lineman apprentice in underground construction, blueprint reading, splicing and sagging conductors, locating faults, and using aerial man-lift equipment. Grade: Pass/No Pass.

Apprenticeship Power Lineman 025

Power Lineman Apprentice 5

Unit(s): 3.0

Class Hours: 32 Lecture total, 48 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the related and supplemental instruction for power lineman apprentices in the theory, operation and installation of electrical apparatus and test equipment in power systems. Includes construction and maintenance of energized line and equipment. Grade: Pass/No Pass.

Apprenticeship Power Lineman 026

Power Lineman Apprentice 6

Unit(s): 3.0

Class Hours: 32 Lecture total, 48 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the required related and supplemental instruction for power lineman apprentices in the theory, installation, maintenance, and operation of electrical apparatus used for system protection, metering, power factor correction and voltage regulation. Grade: Pass/No Pass.

Apprenticeship Power Lineman 041

Work Methods Training

Unit(s): 1.0

Class Hours: 8 Lecture total, 24 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the required related and supplemental instruction for apprentice power lineman in safety, tools, guys and anchors, pole setting and handling, underground tools and equipment. Grade: Pass/No Pass.

Apprenticeship Power Lineman 042

Rubber Gloves Training

Unit(s): 1.0

Class Hours: 8 Lecture total, 32 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the required related and supplemental instruction for apprentice power linemen in tools, accident prevention rules, rubber glove guidelines and rules. Grade: Pass/No Pass.

Apprenticeship Power Lineman 043

Hot Sticks Training

Unit(s): 1.0

Class Hours: 8 Lecture total, 32 Laboratory total.

Prerequisite: Must be a state-indentured apprentice.

Provides the required related and supplemental instruction for apprentice power linemen in history, development, manufacture and care of hot line tools. Grade: Pass/No Pass.



APPRENTICESHIP SURVEYING (ASV)

Division of Business and Career Technical Education

Dean: Von Lawson

Apprenticeship Surveying-Chainman

The Associate of Science degree and Certificate of Achievement in Apprenticeship Surveying Chainman prepare students for a career in surveying and provide the related and supplemental instruction required for apprentice surveyors. Successful completion leads to journeyworker certification. Employers include land surveying and civil engineering firms, and general construction contractors throughout Southern California. Those interested should contact the Southern California Surveying Apprenticeship Committee and the Apprenticeship Office at Santiago Canyon College.

Associate of Science Chainman (13230)

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Begin a career as a journeyworker chainman surveyor.
- Have a basis for further college education.

Major requirements*	Units
Apprenticeship Surveying 030, Labor Relations	0.5
Apprenticeship Surveying 040, Standard First Aid	0.1
Apprenticeship Surveying 101, Chainman Apprentice 1	5
Apprenticeship Surveying 102, Chainman Apprentice 2	5
Apprenticeship Surveying 103, Chainman Apprentice 3	5
Apprenticeship Surveying 104, Chainman Apprentice 4	5
Apprenticeship Surveying 105, Chainman Apprentice 5	5
TOTAL	25.6

Certificate of Achievement Chainman (21667)

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Begin a career as a journeyworker chainman surveyor.
- Have a basis for further college education.

Certificate requirements	Units
Apprenticeship Surveying 030, Labor Relations	0.5
Apprenticeship Surveying 040, Standard First Aid	0.1
Apprenticeship Surveying 101, Chainman Apprentice 1	5
Apprenticeship Surveying 102, Chainman Apprentice 2	5
Apprenticeship Surveying 103, Chainman Apprentice 3	5
Apprenticeship Surveying 104, Chainman Apprentice 4	5
Apprenticeship Surveying 105, Chainman Apprentice 5	5
TOTAL	25.6

Apprenticeship Surveying-Chief of Party

The Associate of Science degree and Certificate of Achievement in Apprenticeship Surveying Chief of Party prepare students for career advancement in surveying. If combined with appropriate field experience, completion of the program may lead to employment as party chief and eventually to professional California state licensing as a land surveyor. The Chief of Party leads the work of a survey party in surveying Earth's surface to determine precise locations and measurements. They are responsible for checking the accuracy of the survey party's work, making accurate measurements, and solving survey problems. Those interested should contact the Southern California Surveying Apprenticeship Committee and the Apprenticeship Office at Santiago Canyon College.

Associate of Science Chief of Party (11990)

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Begin a career as a journeyworker party chief surveyor.
- Have a basis for further college education.

Major requirements*	Units
Apprenticeship Surveying 121, Plane Surveying and Coordinate Geometry	3
Apprenticeship Surveying 122, Advanced Coordinate Geometry	3
Apprenticeship Surveying 123, Laptop Surveying/Aerial Photogrammetry	3
Apprenticeship Surveying 124, Plan Reading and Subdivision Surveying	3
Apprenticeship Surveying 125, Major Project Plans and Survey Layout	3
Apprenticeship Surveying 126, Control and Geodetic Surveying	3
Apprenticeship Surveying 127, U.S. Public Land Surveys	3
Apprenticeship Surveying 128, Property Surveys and Legal Descriptions	3
TOTAL	24

Certificate of Achievement Chief of Party (21666)

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Begin a career as a journeyworker party chief surveyor.
- Have a basis for further college education.

Certificate requirements	Units
Apprenticeship Surveying 121, Plane Surveying and Coordinate Geometry	3
Apprenticeship Surveying 122, Advanced Coordinate Geometry	3
Apprenticeship Surveying 123, Laptop Surveying/Aerial Photogrammetry	3
Apprenticeship Surveying 124, Plan Reading and Subdivision Surveying	3
Apprenticeship Surveying 125, Major Project Plans and Survey Layout	3
Apprenticeship Surveying 126, Control and Geodetic Surveying	3
Apprenticeship Surveying 127, U.S. Public Land Surveys	3
Apprenticeship Surveying 128, Property Surveys and Legal Descriptions	3
TOTAL	24

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Courses

**Apprenticeship Surveying 030
Labor Relations**

Unit(s): 0.5
Class Hours: 12 Lecture total.
Prerequisite: Must be a state-indentured apprentice.
Provides a required related and supplemental instruction for surveying apprentices in apprenticeship rules and regulations; general history of labor/ management relations in the United States (US); employer/employee relations; state and federal laws affecting workers. Grade: Pass/No Pass.

**Apprenticeship Surveying 031
Supplemental Math for Chainman Apprentices**

Unit(s): 1.0
Class Hours: 18 Lecture total.
Prerequisite: Must be a state-indentured apprentice.
Review of basic mathematics, algebra and geometry related to surveying; review angles, azimuths, and bearings; stationing and offsets. Grade: Pass/No Pass.

**Apprenticeship Surveying 040
Standard First Aid**

Unit(s): 0.1
Class Hours: 6 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Enables surveyors to cope with accidents and emergency situations with the goal of protecting and saving lives with special emphasis on those first aid skills unique to the surveying industry. American Red Cross certificate awarded upon successful completion. Grade: Pass/No Pass.

**Apprenticeship Surveying 101
Chainman Apprentice 1**

Unit(s): 5.0
Class Hours: 66 Lecture total, 48 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Provides the required related and supplemental instruction for apprentice surveyors in the survey industry; basic field operations and setting survey points; basic measurement techniques; introduction to field instruments; introduction to leveling; introduction to topographic surveys. Open Entry/Open Exit. **CSU**

**Apprenticeship Surveying 102
Chainman Apprentice 2**

Unit(s): 5.0
Class Hours: 72 Lecture total, 36 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Provides the required related and supplemental instruction for apprentice surveyors in apprentice responsibilities and public relations; identification of monuments; linear measurements; introduction to station and location systems; angles, bearings, and instruments; leveling methods; global positioning system; plan reading and grade sheets; introduction to construction surveys. Open Entry/Open Exit. **CSU**

**Apprenticeship Surveying 103
Chainman Apprentice 3**

Unit(s): 5.0
Class Hours: 69 Lecture total, 30 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Provides the required related and supplemental instruction for apprentice surveyors in measuring systems; angles, bearings, and location systems; calculations techniques; trigonometry for surveying; slope staking; electronic distance measuring and recording. Open Entry/Open Exit. **CSU**

**Apprenticeship Surveying 104
Chainman Apprentice 4**

Unit(s): 5.0
Class Hours: 72 Lecture total, 30 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Provides the required related and supplemental instruction for apprentice surveyors in coordinate geometry; horizontal and vertical curves; traverse surveys. Open Entry/Open Exit. **CSU**

**Apprenticeship Surveying 105
Chainman Apprentice 5**

Unit(s): 5.0
Class Hours: 72 Lecture total, 18 Laboratory total.
Prerequisite: Must be a state-indentured apprentice.
Provides the related and supplemental instruction for apprentice surveyors in safety procedures; U.S. public land surveys; property surveys; subdivisions surveys; topographic and photogrammetry surveys; staking procedures; heavy construction surveys; ALTA surveys; total stations; public relations; scope of profession and the Chief of Party program. Open Entry/Open Exit. **CSU**

**Apprenticeship Surveying 121
Plane Surveying and Coordinate Geometry**

Unit(s): 3.0
Class Hours: 54 Lecture total.
Prerequisite: Must be a state-indentured apprentice.
Advanced field surveying principles and mathematical surveying principles including introduction and review of survey mathematics, measuring systems, coordinate geometry, and modern calculation systems. Open Entry/Open Exit. **CSU**

**Apprenticeship Surveying 122
Advanced Coordinate Geometry**

Unit(s): 3.0
Class Hours: 54 Lecture total.
Prerequisite: Must be a state-indentured apprentice.
Advanced field surveying methods and calculation principles involving coordinate geometry, including omitted measurements, intersection problems, three-point resection problems, area calculation problems, complex circular curves, vertical curves, and spiral curves. Open Entry/Open Exit. **CSU**

**Apprenticeship Surveying 123
Laptop Surveying/Aerial Photogrammetry**

Unit(s): 3.0
Class Hours: 54 Lecture total.
Prerequisite: Must be a state-indentured apprentice.
Advanced field surveying methods and principles involving laptop surveying, photogrammetry, and topographic surveying. Open Entry/Open Exit. **CSU**

**Apprenticeship Surveying 124
Plan Reading and Subdivision Surveying**

Unit(s): 3.0
Class Hours: 54 Lecture total.
Prerequisite: Must be a state-indentured apprentice.
A study of plan reading and subdivision surveying principles and practices including plan reading basics; typical and unique subdivision plans; survey control; layout and staking of subdivisions; locating plan, calculation and specification errors. Open Entry/Open Exit. **CSU**

**Apprenticeship Surveying 125
Major Project Plans and Survey Layout**

Unit(s): 3.0
Class Hours: 54 Lecture total.
Prerequisite: Must be a state-indentured apprentice.
Basic principles of construction plan reading, survey control, major project layout. Interpreting construction and survey plans of reinforced concrete multi-story buildings. In-depth analysis of structural/architectural plans. Plans/survey layout for major construction projects. Open Entry/Open Exit. **CSU**

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Apprenticeship Surveying 126 Control and Geodetic Surveying

Unit(s): 3.0

Class Hours: 54 Lecture total.

Prerequisite: Must be a state-indentured apprentice.

Principles/methods of control and geodetic surveying. Modern positioning systems; triangulation/trilateration for geodetic control; state plane coordinate systems; astronomy for surveyors; note keeping and computational procedures utilizing modern instruments, techniques, communications equipment; dredging and hydrographic surveys. Open Entry/Open Exit. **CSU**

Apprenticeship Surveying 127

U.S. Public Land Surveys

Unit(s): 3.0

Class Hours: 54 Lecture total.

Prerequisite: Must be a state-indentured apprentice.

A study of the principles, procedures and methods of performing U.S. public land surveys. Subdivision of townships and sections. Retracement of original surveys and restoration of corners. Reading and interpreting property descriptions. Open Entry/Open Exit. **CSU**

Apprenticeship Surveying 128

Property Surveys and Legal Descriptions

Unit(s): 3.0

Class Hours: 54 Lecture total.

Prerequisite: Must be a state-indentured apprentice.

Principles, procedures and methods of researching and performing property surveys. Laws affecting surveyors and ethics. Supervision and public relations. Analysis of survey data and drawing the plat. Writing descriptions of real property. Open Entry/Open Exit. **CSU**

ART (ART)

Division of Arts, Humanities and Social Sciences

Dean: Marilyn Flores

Department Chair, Fine Arts: Robert Miller

Associate in Arts

Studio Arts for Transfer (31715)

The Associate in Arts in Studio Arts for Transfer degree provides students with an opportunity to explore studio arts both conceptually and aesthetically by utilizing critical analysis and experimental practice. Possible careers in fine arts are studio artist, art educator, art designer, gallery personnel, museum technician, illustrator, digital media artist, animator and related fields. Successful completion of the transfer degree in studio arts guarantees the student acceptance to the California State University system to pursue a baccalaureate degree in studio arts or a related field.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Demonstrate critical analysis of works of art in historical and cultural context.
- Demonstrate the ability to create works of art using a variety of materials and techniques, visual elements and principles of design.

Major requirements*

Units

Art 101, Survey of Western Art History I: Prehistory Through the Middle Ages	3
Art 102, Survey of Western Art History II: Renaissance Through the Twentieth Century	3
Art 110, Two-Dimensional Design	3
Art 111, Three-Dimensional Design	3
Art 130, Introduction to Drawing	3
Select three (3) courses from the following (List B):	9
Art 128, Introduction to Illustration (3)	
Art 131, Beginning Life Drawing (3)	
Art 141, Beginning Painting (3)	
Art 149, Introduction to Digital Photography (3)	
Art 195, Introduction to Digital Media Arts (3)	
Art 230, Intermediate Drawing (3)	
Art 231, Intermediate Life Drawing (3)	
Art 232, Advanced Life Drawing (3)	
Art 233, Advanced Drawing (3)	
Art 241, Intermediate Painting (3)	
Art 242, Advanced Painting (3)	

TOTAL 24

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



**Associate of Arts
Art (11911)**

The Associate of Arts degree in Art provides students with an opportunity for individual creative stimulus and development. Completion of the associate of arts degree also prepares students to transfer to a four-year institution leading to a baccalaureate degree or into a professional art school. Possible careers in fine arts are art education, interior design, gallery operation, art merchandising, studio artist, illustration, art criticism, computer graphics and animation and related fields.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Demonstrate the ability to create works of art using a variety of materials and techniques, visual elements and principles of design.
- Demonstrate critical analysis of works of art in historical and cultural context.

Major requirements*	Units
Art 100/100H, Introduction to Art Concepts	3
Art 101, Survey of Western Art History I: Prehistory Through the Middle Ages	3
Art 102, Survey of Western Art History II: Renaissance Through the Twentieth Century	3
Art 110, Two-Dimensional Design	3
Art 111, Three-Dimensional Design	3
Art 130, Introduction to Drawing	3
Art 131, Beginning Life Drawing	3
Art 141, Beginning Painting	3
Select six (6) units from the following:	6
Art 128, Introduction to Illustration (3)	
Art 149, Introduction to Digital Photography (3)	
Art 159, Introduction to Mobile Application Development and Design (3)	
Art 195, Introduction to Digital Media Arts (3)	
Art 228, Intermediate Illustration (3)	
Art 230, Intermediate Drawing (3)	
Art 231, Intermediate Life Drawing (3)	
Art 232, Advanced Life Drawing (3)	
Art 233, Advanced Drawing (3)	
Art 241, Intermediate Painting (3)	
Art 242, Advanced Painting (3)	
Art 249, Intermediate Digital Photography (3)	
Art 250, Advanced Studio Concepts (3)	
Art 259, Advanced Mobile Application Development and Design (3)	
TOTAL	30

**Associate of Science
Graphic Design (11921)**

The Associate of Science degree in Graphic Design prepares students for entry into the broad field of visual communication, with an emphasis on the development of problem solving in the practical application of graphic design. These applications include design for the print media, advertising, architectural and environmental graphics, packaging, logos, corporate identity, the web and other electronic media, using both digital media tools as well as traditional hand skills. It also enables students to enter a four-year institution leading to a baccalaureate degree or into a professional art school with a graphic design emphasis.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Demonstrate the use of tools and techniques to create graphic design images using visual elements and principles of design.
- Demonstrate critical analysis of works of art in historical and cultural context.

Major requirements*	Units
Art 100/100H, Introduction to Art Concepts	3
Art 110, Two-Dimensional Design	3
Art 111, Three-Dimensional Design	3
Art 122, Graphic Design I	3
Art 129, Introduction to Web Design	3
Art 130, Introduction to Drawing	3
Art 131, Beginning Life Drawing	3
Art 195, Introduction to Digital Media Arts	3
Marketing 112, Principles of Advertising	3
Select one (1) course from the following:	3
Art 101, Survey of Western Art History I: Prehistory Through the Middle Ages (3)	
Art 102, Survey of Western Art History II: Renaissance Through the Twentieth Century (3)	
Art 128, Introduction to Illustration (3)	
Art 149, Introduction to Digital Photography (3)	
Art 159, Introduction to Mobile Application Development and Design (3)	
Art 221, Graphic Design II (3)	
Art 228, Intermediate Illustration (3)	
Art 229, Multimedia Applications for the Web (3)	
Art 230, Intermediate Drawing (3)	
Art 231, Intermediate Life Drawing (3)	
Art 232, Advanced Life Drawing (3)	
Art 233, Advanced Drawing (3)	
Art 241, Intermediate Painting (3)	
Art 242, Advanced Painting (3)	
Art 249, Intermediate Digital Photography (3)	
Art 250, Advanced Studio Concepts (3)	
Art 259, Advanced Mobile Application Development and Design (3)	
Computer Science 105, Visual BASIC Programming (3)	
TOTAL	30

Digital Media Arts Certificates

The certificate programs in Digital Media Arts reflect the industry standard in the field of advertising/graphic design for printed media, mobile devices, the web, and digital imaging. The programs are designed with a combination of courses from fine art, digital media, computer science, computer information systems, and marketing to develop technical skills and creativity in digital media. Graduates of these programs will find entry into the profession at various levels with employment opportunities in the fields of mobile application design, advertising, graphic design, web design, and digital imaging.

**Certificate of Achievement
Digital Media Arts: Graphic Design (21670)**

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Demonstrate the ability to create graphic design images using visual elements and principles of design.
- Demonstrate the use of a variety of digital media tools and techniques to create graphic design images.

Certificate requirements	Units
Art 100/100H, Introduction to Art Concepts	3
Art 110, Two-Dimensional Design	3
Art 122, Graphic Design I	3
Art 129, Introduction to Web Design	3
Art 130, Introduction to Drawing	3
Art 195, Introduction to Digital Media Arts	3
Select one (1) course from the following:	3
Art 101, Survey of Western Art History I: Prehistory Through the Middle Ages (3)	
Art 111, Three-Dimensional Design (3)	

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Art 128, Introduction to Illustration (3)
 Art 131, Beginning Life Drawing (3)
 Art 141, Beginning Painting (3)
 Art 149, Introduction to Digital Photography (3)
 Art 221, Graphic Design II (3)
 Art 228, Intermediate Illustration (3)
 Art 230, Intermediate Drawing (3)
 Art 231, Intermediate Life Drawing (3)
 Art 232, Advanced Life Drawing (3)
 Art 250, Advanced Studio Concepts (3)
 Computer Science 105, Visual BASIC Programming (3)
 Marketing 112, Principles of Advertising (3)

TOTAL 21

Certificate of Achievement Digital Media Arts: Mobile Application Development and Design (35016)

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Demonstrate the ability to create interface designs using a variety of digital media tools and techniques.
- Demonstrate the ability to create interface designs using visual elements and principles of design.

Certificate requirements	Units
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Art 159, Introduction to Mobile Application Development and Design	3
Computer Information Systems 159, Introduction to iOS/iPhone Mobile App Development	3

If emphasis is Digital Media Art and Design, select courses from List A. If emphasis is Programming, select courses from List B.

Select four (4) courses from List A (Digital Media Art and Design): 12

Art 122, Graphic Design I (3)
 Art 129, Introduction to Web Design (3)
 Art 149, Introduction to Digital Photography (3)
 Art 195, Introduction to Digital Media Arts (3)
 Art 221, Graphic Design II (3)
 Art 229, Multimedia Applications for the Web (3)
 Art 259, Advanced Mobile Application Development and Design (3)

Select four (4) courses from List B (Programming): 12

Computer Information Systems 130, HTML and JavaScript (3)
 Computer Information Systems 259, Advanced iOS/iPhone Mobile App Development (3)
 Computer Science 112, Java Programming (3)
 Computer Science 120, Introduction to Programming (3)
 Computer Science 213, C# Programming (3)
 Marketing 112, Principles of Advertising (3)

TOTAL 18

Courses

Art 100

Introduction to Art Concepts

Unit(s): 3.0

Class Hours: 48 Lecture total.

A study of the visual arts in relation to both personal and cultural expressions. Fundamentals of visual organization, color theory, terminology, historical art movements and concepts will be studied. Required for art majors. **CSU/UC (C-ID)**

Art 100H

Honors Introduction to Art Concepts

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: A high school or college GPA of 3.0 or above.

Enriched exposure to a study of the visual arts in relation to personal and cultural expression with an emphasis on critical thinking and writing. Fundamentals of visual organization, color theory, terminology, historical art movements and concepts will be studied in a seminar format. Students are required to visit an art museum or gallery. **CSU/UC (C-ID)**

Art 101

Survey of Western Art History I: Prehistory Through the Middle Ages

Unit(s): 3.0

Class Hours: 48 Lecture total.

Recommended Preparation: English 101/101H or concurrent enrollment.

The study of art and architecture from Prehistory through the Middle Ages. Cultures and civilizations are studied through visual imagery, lectures, class discussion, reading, and research. Students are required to independently visit an art museum. Field trips may be required. **CSU/UC (C-ID)**

Art 102

Survey of Western Art History II: Renaissance Through the Twentieth Century

Unit(s): 3.0

Class Hours: 48 Lecture total.

Recommended Preparation: English 101/101H.

The study of Western art history from the Renaissance through the 20th century. Art movements and individual painters, sculptors, architects and printmakers will be presented within the context of the social, political and intellectual histories of their respective periods. Required for art majors. **CSU/UC**

Art 110

Two-Dimensional Design

Unit(s): 3.0

Class Hours: 32 Lecture total, 64 Laboratory total.

Introduction to terminology, historical concepts, and aesthetic techniques associated with two-dimensional art and composition, including the study and application of visual elements and principles of design. Application of concepts will be executed through creative projects. Required for art majors. A combination of Art 110 and 111 may be taken a maximum of four enrollments. **CSU/UC (C-ID)**

Art 111

Three-Dimensional Design

Unit(s): 3.0

Class Hours: 32 Lecture total, 64 Laboratory total.

Fundamentals of visual organization as applied to objects in-the-round. Visual space problems, structure and dimensional terminology through creative projects in various media. Required for art majors. A combination of Art 110 and 111 may be taken a maximum of four enrollments. **CSU/UC (C-ID)**

Art 122

Graphic Design I

Unit(s): 3.0

Class Hours: 32 Lecture total, 64 Laboratory total.

Recommended Preparation: Art 110 or 195 or an understanding of Photoshop and Illustrator software.

Introduction to basic graphic design concepts, techniques and practices resulting in the production of effective visual communications. Projects combine text with images, using current industry standards in print media, interactive technologies, and other design applications. A combination of Art 122 and 221 may be taken a maximum of four enrollments. **CSU**

**Art 128****Introduction to Illustration**

Unit(s): 3.0

Class Hours: 32 Lecture total, 64 Laboratory total.

Prerequisite: Art 130.

An introductory course to book illustration, concept art, animation, descriptive rendering, editorial illustration and fashion drawing. Focus is on developing technical and conceptual expertise. Course examines master works by contemporary and historic artists. A combination of Art 128 and 228 may be taken a maximum of four enrollments. *CSU*

Art 129**Introduction to Web Design**

Unit(s): 3.0

Class Hours: 48 Lecture total, 16 Laboratory total.

Introduction to the development and design of web sites with an emphasis on the elements and principles of design as they relate to web interfaces. Includes learning the technical requirements for colors, fonts, file optimization, effects, image resolution, and special effects. Includes creative Web design projects. A combination of Art 129, 159, 229 and 259 may be taken a maximum of four enrollments. *CSU*

Art 130**Introduction to Drawing**

Unit(s): 3.0

Class Hours: 32 Lecture total, 64 Laboratory total.

Introductory course in expressive drawing, exploring line, form, composition, and a variety of media. Drawing from man-made objects and natural forms. Required for art majors. A combination of Art 130, 230, 233 and 250 may be taken a maximum of four enrollments. *CSU/UC (C-ID)*

Art 131**Beginning Life Drawing**

Unit(s): 3.0

Class Hours: 32 Lecture total, 64 Laboratory total.

Recommended Preparation: Art 130.

Introduction to drawing the human form by observing live models for studies in anatomy, structure, and composition. Exposure to traditional and contemporary figurative drawing while exploring media and methods. Required for art majors. A combination of Art 131, 231 and 232 may be taken a maximum of four enrollments. *CSU/UC (C-ID)*

Art 141**Beginning Painting**

Unit(s): 3.0

Class Hours: 32 Lecture total, 64 Laboratory total.

Recommended Preparation: Art 110 and 130.

Introduction to acrylic and/or oil painting as a creative art form with exposure to historical, traditional and contemporary painting styles. Course includes principles of composition and color theory, materials selection, tools, terminology, and techniques. Students develop basic skills painting a variety of subjects. Required of art majors. A combination of Art 141, 241 and 242 may be taken a maximum of four enrollments. *CSU/UC (C-ID)*

Art 149**Introduction to Digital Photography**

Unit(s): 3.0

Class Hours: 48 Lecture total, 16 Laboratory total.

An introductory course in digital photography and imaging including basic camera functions, natural and artificial lighting, computer imaging, and image editing techniques. Aesthetics and concepts of digital photography will be analyzed in both fine art and commercial applications. Students must provide their own digital cameras. A combination of Art 149, 195 and 249 may be taken a maximum of four enrollments. *CSU/UC*

Art 159**Introduction to Mobile Application Development and Design**

Unit(s): 3.0

Class Hours: 48 Lecture total, 16 Laboratory total.

Introduction to the development of mobile applications for smart phones and similar devices. Emphasis will be placed on graphic design standards as they apply to interactive media. Industry-standard multi-platform software will be employed to develop applications that will run on a variety of platforms with an emphasis on iOS. A combination of Art 129, 159, 229 and 259 may be taken a maximum of four enrollments. *CSU*

Art 195**Introduction to Digital Media Arts**

Unit(s): 3.0

Class Hours: 48 Lecture total, 16 Laboratory total.

Introduction to digital media arts for artists, photographers, web designers, illustrators, and animators. Includes an overview of Photoshop, Illustrator, InDesign, digital graphics terminology, careers, market applications and design components. A combination of Art 149, 195 and 249 may be taken a maximum of four enrollments. *CSU/UC (C-ID)*

Art 221**Graphic Design II**

Unit(s): 3.0

Class Hours: 32 Lecture total, 64 Laboratory total.

Prerequisite: Art 122.

Intermediate level study of concepts in graphic design to assist the artist/designer in formulating aesthetic and purposeful visual communications from roughs through finished art. Creative development of solutions to problems in common print media and other design applications. Explores the combination of images and text, using hand skills, digital technology and current graphics industry standards and practices. A combination of Art 122 and 221 may be taken a maximum of four enrollments. *CSU*

Art 228**Intermediate Illustration**

Unit(s): 3.0

Class Hours: 32 Lecture total, 64 Laboratory total.

Prerequisite: Art 128.

Further development of conceptual and technical expertise in book illustration, concept art, animation, descriptive rendering, editorial illustration and fashion drawing. Course examines master works by contemporary and historic artists. Emphasis on developing individual creative style. A combination of Art 128 and 228 may be taken a maximum of four enrollments. *CSU*

Art 229**Multimedia Applications for the Web**

Unit(s): 3.0

Class Hours: 48 Lecture total, 16 Laboratory total.

Prerequisite: Art 129.

Introduction to the use of multimedia components, images, typography, motion and audio, for designing websites. Software may include Photoshop, Dreamweaver, SoundEdit 16 and Flash. Projects include conceptualizing, storyboarding, and designing Web page layout. Application of design elements to Web page creation. A combination of Art 129, 159, 229 and 259 may be taken a maximum of four enrollments. *CSU*



Art 230
Intermediate Drawing

Unit(s): 3.0

Class Hours: 32 Lecture total, 64 Laboratory total.

Prerequisite: Art 130.

Continued study in drawing with additional opportunities in graphic expression. Further exploration of media, including colored pencils, oil pastel, charcoal, ink, and mixed media. Continuation of composition concepts with emphasis on individual expression. Field trip for en plein air style of drawing may be required. A combination of Art 130, 230, 233 and 250 may be taken a maximum of four enrollments. **CSU/UC (C-ID)**

Art 231
Intermediate Life Drawing

Unit(s): 3.0

Class Hours: 32 Lecture total, 64 Laboratory total.

Prerequisite: Art 131.

Continued experience in drawing from the live model with opportunity for development of self-expression. Further exploration of media and techniques. Projects vary each semester. A combination of Art 131, 231 and 232 may be taken a maximum of four enrollments. **CSU/UC**

Art 232
Advanced Life Drawing

Unit(s): 3.0

Class Hours: 32 Lecture total, 64 Laboratory total.

Prerequisite: Art 231.

Intensive study of the figure with further development of drawing skills, composition, technique and media utilizing the live model. Projects vary each semester. A combination of Art 131, 231 and 232 may be taken a maximum of four enrollments. **CSU/UC**

Art 233
Advanced Drawing

Unit(s): 3.0

Class Hours: 32 Lecture total, 64 Laboratory total.

Prerequisite: Art 230 or portfolio review.

To further develop individual graphic expression. Students will plan a series of drawing problems to be executed during the semester under the instructor's direction. A further exploration of new materials and techniques that are in line with creative concepts. Field trip for en plein air style of drawing may be required. A combination of Art 130, 230, 233 and 250 may be taken a maximum of four enrollments. **CSU/UC**

Art 241
Intermediate Painting

Unit(s): 3.0

Class Hours: 32 Lecture total, 64 Laboratory total.

Prerequisite: Art 141.

An intermediate level class designed to promote and advance the creative development of those with basic skills in painting. Opportunity for further study of historical and contemporary references and to increase experience with new media, methods and techniques. Emphasis on artistic expression and individual creative problems. A combination of Art 141, 241 and 242 may be taken a maximum of four enrollments. **CSU/UC**

Art 242
Advanced Painting

Unit(s): 3.0

Class Hours: 32 Lecture total, 64 Laboratory total.

Prerequisite: Art 241.

An advanced level studio course providing opportunity for further refinement of painting skills with increasing exposure to contemporary styles. Emphasis on research and individual creative problems in painting. Exploration into a personal mode of expression through development of media, technique and style. A combination of Art 141, 241 and 242 may be taken a maximum of four enrollments. **CSU/UC**

Art 249
Intermediate Digital Photography

Unit(s): 3.0

Class Hours: 48 Lecture total, 16 Laboratory total.

Prerequisite: Art 149.

An intermediate course in digital photography and imaging that allows students to take the technical information received from Art 149 and apply it to a variety of concepts. This course focuses on projects that explore photographic subjects including portrait, landscape, still life, and commercial photography. Students must provide their own digital camera with manual controls. A combination of Art 149, 195 and 249 may be taken a maximum of four enrollments. **CSU**

Art 250
Advanced Studio Concepts

Unit(s): 3.0

Class Hours: 32 Lecture total, 64 Laboratory total.

Intensive study in visual arts for majors with studio emphasis. This class offers art majors exposure to contemporary art directions, trends and job markets. Students will be given different studio problems each semester which will help them build a personal portfolio. Field trips are required. A combination of Art 130, 230, 233 and 250 may be taken a maximum of four enrollments. **CSU**

Art 259
Advanced Mobile Application Development and Design

Unit(s): 3.0

Class Hours: 48 Lecture total, 16 Laboratory total.

Prerequisite: Art 159.

Advanced topics in the graphic design of mobile applications viewed on smart phones and similar devices. Industry standard multi platform software will be employed to develop applications that will run on a variety of platforms with a focus on iPads and iPhones. Students will work in development teams to map and storyboard advanced application designs. A combination of Art 129, 159, 229 and 259 may be taken a maximum of four enrollments. **CSU**



ASTRONOMY (ASTR)

Division of Mathematics and Sciences

Dean: Martin Stringer

Department Co-Chairs, Astronomy: Danielle Martino

Faculty: Morrie Barembaum, Danielle Martino

Associate of Science

Astronomy (33223)

The Associate of Science degree in Astronomy provides a foundation in astronomy and physics for students planning to transfer into a baccalaureate program in astronomy, astrophysics or astronomy education leading to a career in astronomy and/or physics research, education, or technology and programming.

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Demonstrate an understanding that science is based on observations of the universe and how it is used to understand some basic phenomena of our world.

Major requirements*	Units
Astronomy 109, Introduction to the Solar System	3
OR	
Astronomy 112, Introduction to Cosmology	3
Astronomy 110, Introduction to Stars and Galaxies	3
Astronomy 140, Astronomy Laboratory	1
Physics 250A, Physics for Scientists and Engineers I	5
Physics 250B, Physics for Scientists and Engineers II	5
Physics 250C, Physics for Scientists and Engineers III	5
Computer Science 120, Introduction to Programming	3
TOTAL	25

Some colleges, including San Diego State University, also recommend taking Chemistry 209.

Courses

Astronomy 109

Introduction to the Solar System

Unit(s): 3.0

Class Hours: 48 Lecture total.

Surveys history of astronomy, recent research and space flight observations of the planets, moons, and other solar system objects. Explores light and gravity to understand formation, properties and motion of Solar System objects. **CSU/UC**

Astronomy 110

Introduction to Stars and Galaxies

Unit(s): 3.0

Class Hours: 48 Lecture total.

Surveys the development of astronomy, current research and observations of stars, galaxies and large-scaled structures in the universe. Explores light and gravity to understand the properties and evolution of stars, neutron stars, black holes, galaxies and the universe structures and changes. **CSU/UC**

Astronomy 112

Introduction to Cosmology

Unit(s): 3.0

Class Hours: 48 Lecture total.

Recommended Preparation: Concurrent enrollment in Astronomy 140.

An introduction to the origin, structure, and evolution of the universe with an emphasis on major cosmological models. Discussions will include fundamental concepts of light and matter and their connections to current research including dark matter and dark energy and their implications for the fate of the universe. **CSU/UC**

Astronomy 140

Astronomy Laboratory

Unit(s): 1.0

Class Hours: 48 Laboratory total.

Prerequisite: Astronomy 109, 110 or 112 or concurrent enrollment.

Explores techniques used to study properties of celestial objects and astronomical phenomena. Field trips to local planetaria and dark sky locations may be included. **CSU/UC**

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



BIOLOGY (BIOL)

Division of Mathematics and Sciences

Dean: Martin Stringer

Department Co-Chairs, Life Science:

Michael Taylor, Mark Smith

Faculty: Denise Foley, Robert Houska, Kimberly Johnson, Anson Lui, Charleen Powers, Mark Smith, Michael Taylor

Associate of Science Biology (11856)

The Associate of Science degree in Biology prepares students for transfer to a four-year institution leading to a baccalaureate degree in biology or disciplines such as microbiology, botany, zoology, and careers in teaching, medicine and health sciences.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Demonstrate an understanding of the basic theories of biology.
- Demonstrate a knowledge of and an ability to apply and effectively communicate the scientific method.

Major requirements*	Units
Biology 211, Cellular and Molecular Biology	5
Biology 212, Animal Diversity and Ecology	5
OR	
Biology 221, Animal Diversity and Evolution	
Biology 214, Plant Diversity and Evolution	5
OR	
Biology 231, Plant Diversity and Ecology	5
Chemistry 219/219H, General Chemistry	5
Chemistry 229, General Chemistry and Qualitative Analysis	5
TOTAL	25

Associate of Science Biotechnology (32599)

The Associate of Science degree in Biotechnology is designed for students who wish to obtain the skills required to gain employment in industries influenced by biotechnology as well as for incumbent workers seeking career opportunities. Upon completion of this program, students will be eligible to obtain employment as laboratory assistants, biomanufacturing technicians, or research and development technicians.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Demonstrate an understanding of and follow workplace safety guidelines.
- Demonstrate proficiency in following standard operating procedures (SOPs).
- Properly maintain a laboratory notebook.
- Understand and correctly operate laboratory equipment.

Major requirements*	Units
Biology 190, Introduction to Biotechnology	3
Biology 191, Biotechnology A: Basic Lab Skills	4
Biology 192, Biotechnology B: Proteins	4
Biology 193, Biotechnology C: Nucleic Acids	4
Biology 194, Quality and Regulatory Compliance in Biosciences	2
Biology 211, Cellular and Molecular Biology	5
Chemistry 209, Introductory Chemistry	4
Chemistry 219/219H, General Chemistry	5
TOTAL	31

Certificate of Achievement Biotechnology Biomanufacturing Technician (32598)

The Certificate of Achievement in Biotechnology Biomanufacturing Technician is designed for students who wish to obtain the skills required to gain employment in industries influenced by biotechnology as well as for incumbent workers seeking career opportunities. Upon completion of this certificate program, students will be eligible to obtain employment as laboratory assistants or biomanufacturing technicians.

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Demonstrate an understanding of and follow workplace safety guidelines.
- Demonstrate proficiency in following standard operating procedures (SOPs).
- Properly maintain a laboratory notebook.
- Understand and correctly operate laboratory equipment.

Certificate requirements	Units
Biology 190, Introduction to Biotechnology	3
Biology 190L, Introduction to Biotechnology Lab	1
Biology 191, Biotechnology A: Basic Lab Skills	4
Biology 192, Biotechnology B: Proteins	4
Biology 194, Quality and Regulatory Compliance in Biosciences	2
Chemistry 219/219H, General Chemistry	5
TOTAL	19



**Certificate of Achievement
Biotechnology Laboratory Technician:
Food Safety (32648)**

The Certificate of Achievement in Biotechnology Laboratory Technician of Food Safety is designed for students who wish to obtain the skills required to gain employment in industries influenced by biotechnology within the food industry as well as for incumbent workers seeking career opportunities. Upon completion of this certificate program, students will be eligible to obtain employment as laboratory assistants, biomanufacturing technicians, or research and development technicians.

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Demonstrate an understanding of and follow workplace safety guidelines.
- Demonstrate proficiency in following standard operating procedures (SOPs) as it pertains to food safety.
- Properly maintain a laboratory notebook.
- Understand and correctly operate laboratory equipment.

Certificate requirements	Units
Biology 190, Introduction to Biotechnology	3
Biology 190L, Introduction to Biotechnology Lab	1
Biology 191, Biotechnology A: Basic Lab Skills	4
Biology 192, Biotechnology B: Proteins	4
Biology 193, Biotechnology C: Nucleic Acids	4
Biology 194, Quality and Regulatory Compliance in Biosciences	2
Biology 196, Food Safety and Microbiology	2
Biology 202, Cell Culture Techniques	2
Chemistry 219/219H, General Chemistry	5
Select a minimum of five (5) units from the following:	5-9
Biology 139, Health Microbiology (4)	
OR	
Biology 229, General Microbiology (5)	
Biology 197, Science, Technology, Engineering & Mathematics (STEM) Internship (1-4)	
TOTAL	32-36

**Certificate of Achievement
General Biotechnology Technician (32602)**

The Certificate of Achievement in Biotechnology Laboratory Technician is designed for students who wish to obtain the skills required to gain employment in industries influenced by biotechnology as well as for incumbent workers seeking career opportunities. Upon completion of this certificate program, students will be eligible to obtain employment as laboratory assistants, biomanufacturing technicians, or research and development technicians

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Demonstrate an understanding of and follow workplace safety guidelines.
- Demonstrate proficiency in following standard operating procedures (SOPs).
- Properly maintain a laboratory notebook.
- Understand and correctly operate laboratory equipment.

Certificate requirements	Units
Biology 190, Introduction to Biotechnology	3
Biology 190L, Introduction to Biotechnology Lab	1
Biology 191, Biotechnology A: Basic Lab Skills	4
Biology 192, Biotechnology B: Proteins	4
Biology 193, Biotechnology C: Nucleic Acids	4

Biology 194, Quality and Regulatory Compliance in Biosciences	2
Biology 202, Cell Culture Techniques	2
Chemistry 219/219H, General Chemistry	5

Select a minimum of seven (7) units from the following: 7-10

Biology 139, Health Microbiology (4)	
OR	
Biology 229, General Microbiology (5)	
Biology 177, Human Genetics (3)	
Biology 197, Science, Technology, Engineering & Mathematics (STEM) Internship (1-4)	
Biology 290, Biochemistry and Molecular Biology (5)	
Chemistry 229, General Chemistry and Qualitative Analysis (5)	
TOTAL	32-35

**Certificate of Proficiency
Biotechnology Lab Assistant**

The Certificate of Proficiency in Biotechnology Lab Assistant is designed for students who wish to obtain the skills required to gain employment in industries influenced by biotechnology as well as for incumbent workers seeking career opportunities. Upon completion of this certificate program, students will be eligible to obtain employment as laboratory assistants.

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Develop knowledge necessary to select and develop Science, Technology, Engineering & Mathematics (STEM) careers.

Certificate requirements	Units
Biology 190, Introduction to Biotechnology	3
Biology 191, Biotechnology A: Basic Lab Skills	4
Chemistry 209, Introductory Chemistry	4
TOTAL	11

Courses

**Biology 109
Fundamentals of Biology**

Unit(s): 3.0
Class Hours: 48 Lecture total.

Recommended Preparation: Concurrent enrollment in Biology 109L.

Principles of biology stressing the relationship of all organisms from anatomical, physiological and ecological points of view. Includes cell machinery, genetics, reproduction, embryology, animal behavior, botany, ecology, evolution and human physiology. Designed for non-biology majors. **CSU/UC**

**Biology 109H
Honors Fundamentals of Biology**

Unit(s): 3.0
Class Hours: 48 Lecture total.

Prerequisite: A high school or college GPA of 3.0 or above

Recommended Preparation: Concurrent enrollment in Biology 109L. Traditional Biology enriched in breadth and depth by extensive outside reading assignments and guest lecture presentations. Emphasis is on individual preparation for discussion and analysis of pertinent topics using critical oral and written expression. Designed for non-biology majors. Field trips may be required. **CSU/UC**

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Biology 109HL Honors Fundamentals of Biology Laboratory

Unit(s): 1.0

Class Hours: 48 Laboratory total.

Prerequisite: Biology 109/109H or concurrent enrollment and a high school or college GPA of 3.0 or above.

Hands-on laboratory experiments to identify and illustrate significant organisms and their structures. Emphasis is placed on the relationship of all organisms from an anatomical, physiological, and ecological framework. Content correlates to Biology 109/109H lecture material. Field trips required. **CSU**

Biology 109L Fundamentals of Biology Laboratory

Unit(s): 1.0

Class Hours: 48 Laboratory total.

Prerequisite: Biology 109/109H or concurrent enrollment.

Laboratory experiments to identify and illustrate significant organisms and their structures. Emphasis is placed on the relationship of all organisms from an anatomical, physiological, and ecological framework. Content correlates to Biology 109/109H lecture material. Field trips required. **CSU/UC**

Biology 115 Concepts in Biology for Educators

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

An investigation in the basic principles of Biology and Science with content appropriate for future multiple-subject teachers and secondary through high school. The course material is presented within the context of the human experience and includes cell biology, physiology, genetics, evolution, ecology, and the interaction of humans with the environment. The course is taught from an inquiry-based strategy using active learning. Field trips may be required. **CSU**

Biology 139 Health Microbiology

Unit(s): 4.0

Class Hours: 48 Lecture total, 64 Laboratory total.

Recommended Preparation: Biology 109 or 149.

Presents practical and theoretical aspects of medical microbiology to meet the needs of those in allied health professions. Provides basic knowledge of the microbial world by covering diversity, structure, metabolic and genetic characteristics, cultivation and control. Emphasis is placed on human-microbe interactions especially infectious diseases. Laboratory deals with identification, growth, and control of microorganisms. Field trips may be required. **CSU/UC**

Biology 149 Human Anatomy and Physiology

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Introduces human anatomy and physiology stressing the interrelationships between normal and abnormal structure and function. Laboratory may include the dissection of mammalian tissues. Designed for students in the allied health sciences, and as a life science general education course. May not meet requirements for kinesiology or Bachelor of Science in Nursing (BSN) majors. **CSU**

Biology 177 Human Genetics

Unit(s): 3.0

Class Hours: 48 Lecture total.

Introductory course in genetics. Topics include the principles of Mendelian genetics, mechanisms of mitosis and meiosis, process of transcription, translation and protein synthesis, non-Mendelian patterns of inheritance, the cell cycle, and cell structure. Discussions relevant to current social concerns about genetics covering topics such as cloning, DNA profiling, genetic engineering, prenatal diagnosis, gene therapy, and genomics. **CSU/UC**

Biology 190 Introduction to Biotechnology

Unit(s): 3.0

Class Hours: 48 Lecture total.

Recommended Preparation: Mathematics 080.

Introduction to the field of biotechnology including a history of its origin and development, a survey of modern industrial applications and accomplishments, ethical considerations, and career paths. **CSU**

Biology 190L Introduction to Biotechnology Lab

Unit(s): 1.0

Class Hours: 48 Laboratory total.

Corequisite: Biology 190.

Laboratory experiments emphasizing basic concepts needed for entry-level employment in the bioscience industry. Topics include chemistry of buffers, metrology, biological molecules, gene expression, cell structure, and molecular biology techniques. Introduces basic biotechnology skills including separation methods, aseptic technique, and documentation. Field trips may be required. **CSU**

Biology 191 Biotechnology A: Basic Lab Skills

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Recommended Preparation: Mathematics 080.

Skills include maintenance of an industry standard notebook; preparation and sterilization of solutions, reagents, and media; utilization of good aseptic technique, proper use and maintenance of laboratory equipment, adherence to quality control protocols, and laboratory safety regulations. Compliance with industry standards and regulations will be incorporated into course procedures. **CSU**

Biology 192 Biotechnology B: Proteins

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Prerequisite: Biology 191.

Fundamental skills in applied biotechnology necessary for any biotechnology laboratory but particularly focused on downstream manufacturing processes in biomanufacturing. Skills include maintenance of an industry standard notebook, preparation and sterilization of solutions, reagents and media; utilization of good aseptic technique, proper use and maintenance of laboratory equipment, adherence to quality control protocols, lab safety regulations, in vitro translation, large scale expression, purification, modification, western blot analysis, enzyme-linked immunosorbent assay (ELISA), antibody tagging, and fluorescent microscopy. Compliance with industry standards and regulations will be incorporated into course procedures. **CSU**

Biology 193 Biotechnology C: Nucleic Acids

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Prerequisite: Biology 191.

This course introduces the fundamental skills in any biotechnology laboratory focusing on the upstream research and development process. Skills include the maintenance of an industry standard notebook, preparation and sterilization of solutions, reagents, and media, utilization of good aseptic technique, proper use and maintenance of laboratory equipment, adherence to quality control protocols, lab safety regulations, DNA/RNA extraction and purification, bioinformatics, polymerase chain reaction, electrophoresis, DNA sequencing, recombinant DNA technology, DNA cloning, fluorescence in situ hybridization, and Southern blot analysis. Compliance with industry standards and regulations will be incorporated into course procedures. **CSU**

**Biology 194****Quality and Regulatory Compliance in Biosciences**

Unit(s): 2.0

Class Hours: 32 Lecture total.

Recommended Preparation: Biology 190 or a general knowledge of the specific industries identified as biotechnology.

This course will cover quality assurance and regulatory compliance for the biosciences industries. Topics will span quality control and Federal Drug Administration (FDA) regulations for the biotechnology, biopharmaceutical, biomedical device and food industries. Theories and application of quality assurance and quality control will be presented and several different quality systems will be discussed such as GMP (good manufacturing practices), ISO9000 (International Standards Organization), Six Sigma and Lean. **CSU**

Biology 196**Food Safety and Microbiology**

Unit(s): 2.0

Class Hours: 16 Lecture total, 48 Laboratory total.

Prerequisite: Biology 139 or 229.

Recommended Preparation: Biology 190.

This course will cover the regulatory agencies that oversee and the methodologies prescribed to ensure a safe food supply. The Food Safety Modernization Act, hazard analysis critical control points (HACCP), product traceability, food allergens, and food contaminants including microorganisms will be presented. Discussion of illnesses known to result from ingestion of contaminated foods will occur. Laboratory exercises will stress aseptic technique, microscopy, and identification of microbial contaminants in foods using media, PCR, and immunological methods. **CSU**

Biology 197**Science, Technology, Engineering and Mathematics (STEM)****Internship**

Unit(s): 1.0-4.0

Class Hours: 60-240 Laboratory total.

Prerequisite: Successful completion of 10 units within the Biotechnology Program.

This is an Internship of supervised paid or unpaid work experience in the student's major which could include new or expanded responsibilities. 75 hours paid work or 60 hours of unpaid work equals one unit. A maximum of 4 units is allowed per semester. Limitation of 16 units in occupational cooperative education courses. May be repeated. Grade: Pass/No Pass. **CSU**

Biology 200**Environment of Man**

Unit(s): 3.0

Class Hours: 48 Lecture total.

A biological and physical science introduction to environmental problems such as energy, resources, pollution, land use, population and food, including economic and political factors. A natural science elective. **CSU/UC**

Biology 202**Cell Culture Techniques**

Unit(s): 2.0

Class Hours: 16 Lecture total, 48 Laboratory total.

Prerequisite: Biology 191.

Students will learn eukaryotic cell culture techniques that include working under aseptic conditions, sterile techniques, media preparation, quantification and passage of cell lines. Laboratory experience prepares students for work in industry. **CSU**

Biology 211**Cellular and Molecular Biology**

Unit(s): 5.0

Class Hours: 48 Lecture total, 96 Laboratory total.

Prerequisite: Mathematics 080 and Chemistry 219/219H.

Recommended Preparation: Eligible for English 101.

An investigation into the molecular and cellular basis of life, including the evolution of cells, cell structure and function, energy and information flow, cellular reproduction, genetics, and the molecular basis of inheritance. Required of majors in Biology, Medicine, Forestry, and Agriculture. **CSU/UC (C-ID)**

Biology 212**Animal Diversity and Ecology**

Unit(s): 5.0

Class Hours: 48 Lecture total, 96 Laboratory total.

Prerequisite: Biology 211.

A study of ecological principles, and relationships between animal diversity and ecosystems. Habitat, populations, ecological interactions, and environmental influences are stressed while surveying animal diversity and addressing structure, function, behavior, and adaptation of major taxonomic groups. Required of majors in biology, medicine, forestry and agriculture. Field trips required. **CSU/UC**

Biology 214**Plant Diversity and Evolution**

Unit(s): 5.0

Class Hours: 48 Lecture total, 96 Laboratory total.

Prerequisite: Biology 211.

Principles and processes of evolution leading to biodiversity. Survey of the Bacteria, Archaea, and the Eukarya domains, emphasizing the kingdoms Protista, Fungi, and Plantae with a detailed view of the evolutionary adaptations of the anatomy, physiology, and life cycles of these organisms. Field trips required. **CSU/UC**

Biology 221**Animal Diversity and Evolution**

Unit(s): 5.0

Class Hours: 48 Lecture total, 96 Laboratory total.

Prerequisite: Mathematics 080.

Recommended Preparation: Biology 211.

This course is intended for biology majors and surveys the diversity, structure, function, evolution and taxonomy of the major animal phyla. Topics also include behavior, development, comparative anatomy, and evolutionary relationships with an emphasis on the principles and mechanisms of microevolution and macroevolution accentuating molecular and morphological phylogeny. Field trips are required. **CSU/UC (C-ID)**

Biology 229**General Microbiology**

Unit(s): 5.0

Class Hours: 48 Lecture total, 96 Laboratory total.

Prerequisite: Biology 109/109H and 109L, 139, 149, 211, 239, 249 or Chemistry 209.

Introduction to microorganisms, their classification, structure, biochemistry, growth, control and their interactions with other organisms and the environment. Designed for biology, preprofessional, and prenursing (BSN) majors. This course may also include an optional field trip. **CSU/UC**



Biology 231 Plant Diversity and Ecology

Unit(s): 5.0

Class Hours: 48 Lecture total, 96 Laboratory total.

Prerequisite: Mathematics 080.

Recommended Preparation: Biology 211.

This course is intended for biology majors and surveys the diversity, structure, function and taxonomy of the kingdoms Protista, Fungi, and Plantae. Topics include development, morphology, physiology, taxonomy and systematics, and the principles of population, community, and ecosystem ecology. Field trips required. *CSU/UC (C-ID)*

Biology 239 General Human Anatomy

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Structure of the human body. Systems, organs, and tissues are studied from human skeletons, models, charts, slides and CD-ROM programs. Laboratory includes the dissection of a cat and periodic demonstrations of a prosected cadaver as available. *CSU/UC (C-ID)*

Biology 249 Human Physiology

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Prerequisite: Biology 239.

Microscopic, macroscopic and dynamic view of the human physiological processes. The lecture portion includes a thorough consideration of both 'cell and systems' physiology. Laboratory work includes the use of techniques used in basic research, an introduction to the use of standard medical equipment, and the performance of medical lab tests. Non-invasive experiments are performed on students enrolled in the class. *CSU/UC (C-ID)*

Biology 259 Environmental Biology

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Environmental Biology includes the study of ecosystems, population dynamics, classification, diversity of plant and animal species, effects of pollutants at both the cellular and organismal levels, and principles of ecology. Field trips required. *CSU/UC*

Biology 290 Biochemistry and Molecular Biology

Unit(s): 5.0

Class Hours: 48 Lecture total, 96 Laboratory total.

Prerequisite: Biology 211 and Chemistry 209.

Introduction to biochemistry and molecular biology. Included are discussions of biological macromolecules, energy production, metabolic pathways and regulation, genetic code, genomics, DNA replication, transcription and RNA processing, translation, and gene regulation. Laboratory activities will include use of visible and UV spectroscopy, chromatography, cell fractionation, ultracentrifugation, protein purification, electrophoresis, and recombinant DNA methods. This course is designed for biology majors, health pre-professionals, and biotechnology majors. *CSU/UC*

BUSINESS (BUS)

Division of Business and Career Technical Education

Dean: Von Lawson

Department Co-Chairs, Business: Steven Deeley, Stewart Myers

Faculty: Lynda Armbruster, Steven Deeley, Stewart Myers, Andy Salcido

Associate in Science Business Administration for Transfer (31365)

The Associate in Science in Business Administration for Transfer degree provides students with a comprehensive business education in the principles and practices of all phases of business. A student graduating with an Associate in Science in Business for Transfer may transfer to a four-year institution to complete a Bachelor's Degree. Successful completion of the transfer degree in business administration guarantees the student acceptance to the California State University system to pursue a baccalaureate degree in the field of business, industry or government.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Transfer to a four-year institution.
- Have a broad background in the fundamentals of business leading to a career in management, finance, teaching or entrepreneurship.

Major requirements*	Units
Accounting 101, Financial Accounting	4
Accounting 102, Managerial Accounting	4
Business 105, Legal Environment of Business	3
Economics 101, Principles/Micro	3
Economics 102, Principles/Macro	3
Select one (1) course from the following (List A):	4
Mathematics 150, Calculus for Biological, Management and Social Sciences (4)	
Mathematics 219/219H, Statistics and Probability (4)	
OR	
Social Science 219/219H, Statistics and Probability (4)	
Select two (2) courses from the following (List B):	6-7
An additional course from List A (4)	
(may not be a course used to satisfy the requirements of List A)	
Business 100, Fundamentals of Business (3)	
OR	
Business 222, Business Writing (3)	
Business 150, Introduction to Information Systems and Applications (3)	
OR	
Computer Science 100, The Computer and Society (3)	
TOTAL	27-28

California State University campuses have preferences on which courses should be chosen.

California State University, Fullerton prefers students take Math 150, Business 150 and Business 222.

California State University, Long Beach prefers students take both Math 150 and 219 and either Business 150 or Computer Science 100.

California Polytechnic University, Pomona prefers students take both Math 150 and 219 and Computer Science 100.

Students are advised to check with their college of choice for any other specific course information.



**Associate of Science
Business Administration (11857)**

The Associate of Science degree in Business Administration enables students to transfer to a four-year institution leading to a baccalaureate degree. Career opportunities exist in many areas of business administration such as accounting, financial planning and analysis, financial service specialties, management, marketing and sales, production and logistics, and systems and technology development.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Transfer to a four-year institution.

Major requirements*	Units
Accounting 101, Financial Accounting	4
Accounting 102, Managerial Accounting	4
Business 105, Legal Environment of Business	3
Business 150, Introduction to Information Systems and Applications	3
Business 222, Business Writing	3
Economics 101, Principles/Micro	3
Economics 102, Principles/Macro	3
Select one (1) course from the following:	3-4
Business 100, Fundamentals of Business (3)	
Business 120/Management 120, Principles of Management (3)	
Marketing 113, Principles of Marketing (3)	
Mathematics 150, Calculus for Biological, Management and Social Sciences (4)	
TOTAL	26-27

Students planning for university transfer should be aware that some universities only accept Business 101 for the transfer major (e.g. California State University, Long Beach) while others only accept Business 105 (e.g. California State University, Fullerton) for the transfer major.

Students planning for university transfers should be aware that California State University, Fullerton and many other universities require Math 150 for the Business Administration degree.

Numerous California State University campuses and private colleges and universities offer baccalaureate degrees in Business Administration. In the University of California system, UC Berkeley and UC Riverside offer this degree.

Consult the Transfer Planning Guide and meet with a counselor for information about specific programs and transfer requirements.

**Associate of Science
Business Management (11859)**

The Associate of Science degree in Business Management is designed to enable students to handle basic problems encountered in managing within a business environment including the managing of a marketing program, the making of decisions and problem solving, the coordinating of activities, the influencing of staff, and the understanding of finance. Entry-level careers include management trainees and assistant managers or supervisors.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Prepare for a job or transfer to a four-year institution.

Major requirements*	Units
Accounting 101, Financial Accounting	4
Business 100, Fundamentals of Business	3
Business 120/Management 120, Principles of Management	3
Business 222, Business Writing	3
Marketing 113, Principles of Marketing	3
Select two (2) courses from the following:	6
Business 105, Legal Environment of Business (3)	
Business 121/Management 121, Human Relations and Organizational Behavior (3)	
Business 127, Introduction to E-Commerce (3)	
Business 150, Introduction to Information Systems and Applications (3)	
Management 135, Human Resource Management (3)	
TOTAL	22

Students intending to obtain a bachelors degree in Business Management should consult the major requirements for upper-division standing listed under the Business Administration major. For other related majors, look under Management.

**Certificate of Proficiency
Business Management**

The Certificate of Proficiency in Business Management is designed to enable students to handle basic problems encountered in managing within a business environment. Entry-level careers include management trainees and assistant managers or supervisors.

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Secure entry-level job skills.

Certificate requirements	Units
Accounting 101, Financial Accounting	4
Business 150, Introduction to Information Systems and Applications	
OR	3
Computer Science 100, The Computer and Society	
Business 222, Business Writing	
OR	3
Management 122, Business Communications	
Select one (1) course from the following:	3
Business 100, Fundamentals of Business (3)	
Business 120/Management 120, Principles of Management (3)	
TOTAL	13

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Business Management-Entrepreneurship

The Associate of Science degree and Certificate of Achievement in Entrepreneurship are designed to assist the student in the development of fundamental skills necessary to open and operate a small business and/or to continue the pursuit of a bachelor's degree at a four-year college or university. Students intending to obtain a bachelor's degree in Entrepreneurship should consult the major requirements for upper-division study listed under the Business Administration major.

Associate of Science Entrepreneurship (11860)

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Launch a small business or determine that the potential business would not be successful.

Major requirements*	Units
Accounting 101, Financial Accounting	4
Business 170, Principles of Small Business Management	3
Business 171, Business Plan for Small Business	3
Business 175, Online Entrepreneurship	3
Marketing 172, Small Business Marketing and Advertising	3
Select one (1) course from the following:	2-3
Accounting 035, QuickBooks (2)	
Business 127, Introduction to E-Commerce (3)	
Computer Information Systems 126, Website Development for Business (3)	
TOTAL	18-19

Certificate of Achievement Entrepreneurship (21635)

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Create a small business.

Certificate requirements	Units
Accounting 101, Financial Accounting	4
Business 170, Principles of Small Business Management	3
Business 171, Business Plan for Small Business	3
Business 175, Online Entrepreneurship	3
Marketing 172, Small Business Marketing and Advertising	3
Select one (1) course from the following:	2-3
Accounting 035, QuickBooks (2)	
Business 127, Introduction to E-Commerce (3)	
Computer Information Systems 126, Website Development for Business (3)	
TOTAL	18-19

Courses

Business 090

Principles of Project Management

Unit(s): 3.0

Class Hours: 48 Lecture total.

Utilizing project planning tools and techniques, learn how to define, plan, execute and deliver projects of all types and sizes. Emphasizes practical application using case studies to organize, schedule and manage projects effectively. Industry guest speakers included. (Same as Public Works 080.)

Business 100

Fundamentals of Business

Unit(s): 3.0

Class Hours: 48 Lecture total.

An introduction to the basic fundamentals of business. A survey of marketing management, production, accounting, finance, and economics and how they interrelate in the business environment. **CSU/UC (C-ID)**

Business 105

Legal Environment of Business

Unit(s): 3.0

Class Hours: 48 Lecture total.

A study of the courts, torts (including product liability), crimes, contracts, employment, partnerships, corporations, government regulation, and international law. **CSU/UC**

Business 120

Principles of Management

Unit(s): 3.0

Class Hours: 48 Lecture total.

Principles, methods, and procedures essential to the successful management of human and financial resources. Planning, decision making, staffing, directing, motivating, leading, communicating, controlling, and the application of managerial skills. (Same as Management 120.) **CSU**

Business 121

Human Relations and Organizational Behavior

Unit(s): 3.0

Class Hours: 48 Lecture total.

The role of the manager and management's relationship to employees. Includes the application of motivational theories, communications, leadership, and organizational structure. (Same as Management 121.) **CSU**

Business 127

Introduction to E-Commerce

Unit(s): 3.0

Class Hours: 48 Lecture total.

Electronic commerce from a managerial perspective focusing on the retailing, business-to-business and service industries. Topics include: E-Commerce infrastructure, intranets and extranets, electronic payment systems, marketing research, advertising, E-Commerce strategies, and privacy issues. **CSU**

Business 130

Personal Finance

Unit(s): 3.0

Class Hours: 48 Lecture total.

This course is an integrative approach to personal finance focusing on practical financial decision making as well as the social, psychological, and physiological contexts in which those decisions are made. Students will examine their relationships with money, set personal goals, and develop a plan to meet those goals. Topics include consumerism, debt, healthcare, investing, retirement, long-term care, disability, death, and taxes. **CSU**

Business 150

Introduction to Information Systems and Applications

Unit(s): 3.0

Class Hours: 48 Lecture total.

Introduction to computer concepts and management information systems. Application software used to solve business problems. **CSU (C-ID)**



Business 170

Principles of Small Business Management

Unit(s): 3.0

Class Hours: 48 Lecture total.

Practical business skills needed to start and operate a small business. Includes information on risk management, site location, legal aspects, financing, budgeting, merchandising, promotion, and management techniques. **CSU**

Business 171

Business Plan for Small Business

Unit(s): 3.0

Class Hours: 48 Lecture total.

Recommended Preparation: Concurrent enrollment in Business 170.

Business planning for the opening or continued successful operation of a small business through the preparation of a written business plan. **CSU**

Business 175

Online Entrepreneurship

Unit(s): 3.0

Class Hours: 48 Lecture total.

This class is designed to help potential online entrepreneurs develop startup procedures, explore ideas and implement plans. Students will learn how to build and implement a business strategy for the Internet, including business specific considerations, online marketing and Ecommerce strategies. **CSU**

Business 222

Business Writing

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: English 101/101H.

Overview of oral and written communication skills used in business; emphasizes guidelines for improving writing and speaking skills, common solutions to common communication problems, ethical issues facing business communicators today, instructions on how to identify areas of legal vulnerability, and tested techniques for communicating successfully in today's high-tech, international business environment. Designed for students transferring to a university. **CSU (C-ID)**

CHEMISTRY (CHEM)

Division of Mathematics and Sciences

Dean: Martin Stringer

Department Chair, Chemistry: Denise Bailey, Jeffrey Wada

Faculty: Denise Bailey, Nahla El-Said, Nicole Torneo, Jeffrey Wada

Associate of Science

Chemistry (11933)

The Associate of Science degree in Chemistry provides basic courses for a wide variety of occupations, or prepares the student to enter a curriculum in a four-year institution leading to a baccalaureate degree. The major fields of chemistry are inorganic and organic chemistry, biochemistry, and chemical engineering. These fields provide career opportunities in industry, research, and teaching, and also entry into graduate or professional programs such as medicine, pharmacy and other related health fields.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Solve problems that embody the intellectual principles of Chemistry.
- Critically analyze, and interpret data to draw valid scientific conclusions and communicate those conclusions in a clear and articulate manner.

Major requirements*

Major requirements*	Units
Chemistry 219/219H, General Chemistry	5
Chemistry 229, General Chemistry and Qualitative Analysis	5
Chemistry 249, Organic Chemistry I	5
Chemistry 259, Organic Chemistry II	5
Mathematics 180/180H, Single Variable Calculus I	4
TOTAL	24

Courses

Chemistry 209

Introductory Chemistry

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Prerequisite: Mathematics 080.

This course prepares students for Biology and Chemistry 219 by exploring the basic concepts of matter such as: atomic structure, formulas, equation writing, nomenclature, gases, and kinetic theory. Properties of solutions and the mole concept in quantitative chemistry will be emphasized. **CSU/UC**

Chemistry 210

General, Organic, and Biochemistry

Unit(s): 5.0

Class Hours: 64 Lecture total, 48 Laboratory total.

Prerequisite: Chemistry 209 or a passing score on the current chemistry placement test and Mathematics 080.

An introduction to the fundamental concepts of general, organic and biochemistry for majors in nursing, and other allied health majors. Includes atomic structure, nuclear chemistry, bonding, solutions, acids and bases, organic nomenclature, hydrocarbons, alcohols, aldehydes, ketones, carboxylic acids, carbohydrates, proteins, lipids, nucleic acids and metabolism. **CSU/UC**

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Chemistry 219 General Chemistry

Unit(s): 5.0

Class Hours: 48 Lecture total, 96 Laboratory total.

Prerequisite: Chemistry 209 or a passing score on current chemistry placement test and Mathematics 080.

This is the first semester of a year-long sequence covering the fundamental principles and concepts of chemistry and is intended for students studying physical science, life science, and engineering. The topics are to include, but not limited to, atomic structure, quantum theory, periodic properties, stoichiometry, oxidation-reduction, molecular structure and bonding, gas laws, states of matter, solutions, chemical kinetics and chemical equilibrium. This course is a requirement to earn a degree in the physical science, life science, and engineering majors. **CSU/UC (C-ID)**

Chemistry 219H Honors General Chemistry

Unit(s): 5.0

Class Hours: 48 Lecture total, 96 Laboratory total.

Prerequisite: Chemistry 209 or a passing score on current chemistry placement test and Mathematics 080 and a high school or college GPA of 3.0 or above.

An in-depth Honors study of the fundamental principles and concepts of chemistry. This course is intended for students studying physical science, life science, and engineering. The topics are to include, but not limited to, atomic structure, quantum theory, periodic properties, stoichiometry, oxidation-reduction, molecular structure and bonding, gas laws, states of matter, solutions, chemical kinetics and chemical equilibrium. This course is a requirement to earn a degree in the physical science, life science, and engineering majors. **CSU/UC (C-ID)**

Chemistry 229 General Chemistry and Qualitative Analysis

Unit(s): 5.0

Class Hours: 48 Lecture total, 96 Laboratory total.

Prerequisite: Chemistry 219.

Continuation of Chemistry 219, including but not limited to ionic equilibrium, acid and base equilibrium, thermodynamics, electrochemistry, nuclear chemistry, organic chemistry and descriptive chemistry. **CSU/UC (C-ID)**

Chemistry 249 Organic Chemistry I

Unit(s): 5.0

Class Hours: 48 Lecture total, 96 Laboratory total.

Prerequisite: Chemistry 229.

This course is the first semester of a year of organic chemistry. This course will cover structure and bonding, nomenclature, descriptive chemistry, reaction mechanisms, synthetic methods and IR spectroscopy for different functional groups including alkanes, alkenes, alkynes, alkyl halides, organometallics, alcohols, and ethers. Laboratory will include separations/purifications identification, and simple syntheses. **CSU/UC (C-ID)**

Chemistry 259 Organic Chemistry II

Unit(s): 5.0

Class Hours: 48 Lecture total, 96 Laboratory total.

Prerequisite: Chemistry 249.

This course is the second semester of a year of organic chemistry (continuation of Chemistry 249). It includes units on structure elucidation, aromatic compounds, carbonyl compounds, carboxylic acids and their derivatives, amines, and classes of biologically important compounds. More complex synthetic routes are explored. Laboratory work includes multi-step syntheses and unknown identification. Reaction mechanisms and use of spectroscopic techniques continue to be emphasized. This course is intended for science majors. **CSU/UC (C-ID)**

CHICANO STUDIES (CHST)

Division of Arts, Humanities and Social Sciences

Dean: Marilyn Flores

Department Chair, Chicano Studies: Tiffany Gause

Courses

Chicano Studies 101 Introduction to Chicano Studies

Unit(s): 3.0

Class Hours: 48 Lecture total.

An interdisciplinary survey of Chicano society from a sociological, economic, political, philosophical, and cultural perspective from pre-Columbian civilizations to contemporary society. This course is designed to present a foundation in Chicano history. **CSU/UC**



CHILD DEVELOPMENT (CDEV)

Division of Business and Career Technical Education

Dean: Von Lawson

Department Chair, Child Development: Regina Lamourelle

The early childhood certificates offer students fundamental knowledge about the young child from conception through the early elementary years, providing developmentally appropriate learning opportunities to meet the social, emotional, physical, cognitive, and education needs of the child. The early childhood certificates emphasize infant/toddler, preschool, and school-age courses necessary for employment in state-licensed Title 22, publicly funded Title 5 programs and religious affiliated programs. These certificates are also recommended courses for those who work as licensed family child care providers, nannies, or recreation child care workers (cruise, exercise, or retail child care establishments).

The Infant/Toddler and Preschool certificates prepare students for extended study in infant/toddler development or early learning to obtain an associate or a baccalaureate degree in child development or employment as an infant-toddler or preschool program director, teacher, or other specialist working with young children and families. The school age certificate of proficiency prepares students who are seeking to work with elementary age children in an afterschool, camp, cruise, or family day care setting. All three certificates lead to child development permits and require that students show negative TB test results.

Certificate of Proficiency Infant/Toddler

The Certificate of Proficiency in Infant/Toddler meets the minimum requirements for beginning early learning professionals employed or seeking employment as teachers and/or aides in privately owned and church affiliated (Title 22) or publically funded (Title 5) programs serving infants and toddlers. This certificate is also recommended for licensed Family Day Care Providers or Nannies.

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Demonstrate skill and mastery of child development theories and proficiency in application in a simulated/real infant/toddler setting or scenario.
- Develop a portfolio of developmentally appropriate activities, programming, and assessment strategies for infants and toddlers in the cognitive, psychosocial, and biosocial domains.

Certificate requirements	Units
Child Development 107, Child Growth and Development (DS1)	3
Child Development 108, Observation and Assessment for Early Learning and Development (DS3)	3
Child Development 110, Child, Family and Community (DS2)	3
Child Development 116A, Infant/Toddler Growth and Development (DS4)	3
Child Development 116B, Care and Education for Infants and Toddlers (DS3)	3
TOTAL	15

A NEGATIVE TB TEST RESULT AND STATE-MANDATED IMMUNIZATIONS ARE REQUIRED FOR CERTIFICATE COMPLETION.

Certificate of Proficiency Preschool

The Certificate of Proficiency in Preschool meets the minimum requirements for beginning early learning professionals employed or seeking employment as teachers and/or aides in privately owned and church affiliated (Title 22) or publically funded (Title 5) programs serving preschoolers 2-5. This certificate is also recommended for licensed family day care providers or nannies.

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Demonstrate skill and mastery of child development theories and proficiency in application in a simulated/real preschool setting or scenario.
- Develop a portfolio of developmentally appropriate activities, programming, and assessment strategies for preschoolers in the cognitive, psychosocial, and biosocial domains.

Certificate requirements	Units
Child Development 107, Child Growth and Development (DS1)	3
Child Development 108, Observation and Assessment for Early Learning and Development (DS3)	3
Child Development 110, Child, Family and Community (DS2)	3
Child Development 111A, Principles and Practices of Teaching Young Children	3
Child Development 111B, Introduction to Curriculum for Young Children	3
TOTAL	15

A NEGATIVE TB TEST RESULT AND STATE-MANDATED IMMUNIZATIONS ARE REQUIRED FOR CERTIFICATE COMPLETION.

Certificate of Proficiency The School-Age Child

The Certificate of Proficiency in the School-Age Child is intended to prepare a student for an entry or reentry level position requiring practical skills and knowledge to work with school-age children (PreK-Grade 3) in Title 22 or Title 5 after-school care programs. Completion of this certificate leads to a School-Age Children's Center Permit.

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Demonstrate skill and mastery in applying school-age child development themes, theories, and concepts in a real/simulated school-age setting or scenario.
- Develop a portfolio of developmentally appropriate school-age activities and programming including discipline, health, social interaction, parent communication, media influences, and assessment strategies for the cognitive, psychosocial, and biosocial domains.

Certificate requirements	Units
Child Development 110, Child, Family and Community (DS2)	3
Child Development 112, Health, Safety, and Nutrition for Children	3
Child Development 120A, Development of the School-Age Child (DS5)	3
Child Development 120B, School-Age Child Care and Recreation Activities (DS5)	3
Child Development 221, Living and Teaching in a Diverse Society	3
TOTAL	15

A NEGATIVE TB TEST RESULT AND STATE-MANDATED IMMUNIZATIONS ARE REQUIRED FOR CERTIFICATE COMPLETION.



Courses

Child Development 107

Child Growth and Development (DS1)

(Formerly: Human Development 107, Child Growth and Development (DS1))

Unit(s): 3.0

Class Hours: 48 Lecture total.

This introductory course examines the interactions between maturational processes and environmental factors and the major physical, psychosocial, and cognitive/language developmental milestones for children, both typical and atypical, from conception through adolescence. While studying developmental theory and investigative research methodologies, students will observe children, evaluate individual differences, and analyze characteristics of development at various stages. Field-based assignments may be required. No credit for students who have taken Psychology 157. **CSU/UC (C-ID)**

Child Development 108

Observation and Assessment for Early Learning and Development (DS3)

(Formerly: Human Development 108A, Observation and Assessment for Early Learning and Development)

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: Child Development 107 or concurrent enrollment.

This course focuses on the appropriate use of assessment and observation strategies to document young children's development and learning. Emphasizes use of findings to inform and plan learning environments and experiences. Recording strategies, rating systems, portfolios, and multiple assessment tools will be explored along with strategies for collaboration with families and professionals. Field trips and field-based assignments may be required. A negative TB test result and state-mandated immunizations are required. **CSU**

Child Development 110

Child, Family and Community (DS2)

(Formerly: Human Development 110, Child, Family and Community (DS2))

Unit(s): 3.0

Class Hours: 48 Lecture total.

This course examines processes of socialization focusing on the interrelationship of family, school, and community and the influence of multiple societal contexts. Explores the role of collaboration between family, community, and schools in supporting children's development. Field trips and field-based assignments may be required. **CSU/UC**

Child Development 111A

Principles and Practices of Teaching Young Children

(Formerly: Human Development 111A, Principles and Practices of Teaching Young Children)

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: Child Development 107 and 108.

An examination of the historical context and theoretical perspectives of developmentally appropriate practices in early care and education. Examines the role of the early childhood educator, identifying best practices for environmental design, curriculum, and teaching strategies. Explores teacher-child relationships, professional ethics, career pathways, and professional standards. Field trips and field-based assignments may be required. A negative TB test result and state-mandated immunizations are required. **CSU**

Child Development 111B

Introduction to Curriculum for Young Children

(Formerly: Human Development 111B, Introduction to Curriculum for Young Children (DS3))

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: Child Development 107, 108 and 111A (CDEV 111A may be previously or concurrently enrolled).

This course examines developmentally appropriate curriculum and environments for young children. Explores teaching strategies and curriculum development based on theoretical frameworks, observation and assessment. Emphasizes the teacher's role in supporting development and learning across the curriculum. Emphasizes the teacher's role in supporting development and learning across the curriculum, including content areas. Field trips and field-based assignments may be required. A negative TB test result and state-mandated immunizations are required. **CSU**

Child Development 112

Health, Safety and Nutrition for Children

(Formerly: Human Development 112, Health, Safety and Nutrition for Children)

Unit(s): 3.0

Class Hours: 48 Lecture total.

Recommended Preparation: Six (6) units of Child Development classes.

Introduction to the laws, regulations, standards, policies and procedures, and best practices related to child health safety and nutrition in early childhood programs. Includes prevention strategies, nutrition and meal planning for various ages and abilities and planning educational experiences integrated into daily routines designed to teach children positive health, safety, and nutrition habits. Field trips and field-based assignments may be required. A negative TB test result and state-mandated immunizations are required. **CSU**

Child Development 116A

Infant/Toddler Growth and Development (DS4)

(Formerly: Human Development 116A, Infant/Toddler Growth and Development (DS4))

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: Child Development 107 and 108.

A study of infants and toddlers from pre-conception to age three including physical, cognitive, language, social, and emotional growth and development. Applies theoretical frameworks to interpret behavior and interactions between heredity and environment. Emphasizes the role of family and relationships in development. Partially fulfills the requirements for state licensing. With Child Development 116B, this class fulfills infant/toddler specialization for Child Development Center permits. Field trips and field-based assignments may be required. A negative TB test result and state-mandated immunizations are required. **CSU**

Child Development 116B

Care and Education for Infants and Toddlers (DS3)

(Formerly: Human Development 116B, Programming for Infants and Toddlers (DS4))

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: Child Development 107, 108 and 116A (CDEV 116A may be previously or concurrently enrolled).

Applies current theory and research to the care and education of infants and toddlers in group settings. Examines essential policies, principles and practices that lead to quality care and developmentally appropriate curriculum for children birth to 36 months. This class partially fulfills the requirements for state licensing. With Child Development 116A, this course fulfills infant/toddler specialization for Child Development Center permit. Field trips and field-based assignments may be required. A negative TB test result and state-mandated immunizations are required. **CSU**



**Child Development 120A
Development of the School-Age Child (DS5)
(Formerly: Human Development 120, Development of the School Age Child (DS5))**

Unit(s): 3.0
Class Hours: 48 Lecture total.
Prerequisite: Child Development 107 and 108.

Examines the physical, cognitive/language, and psychosocial development of children five to twelve years old emphasizing the interactions between maturational processes and environmental factors. Using developmental theory and investigative research methodologies, students will observe and evaluate children addressing issues of typical and atypical development and diversity. Fulfills partial requirements for the School-Age Child Development Permit. Not offered every semester. Field trips to local child development centers may be included. A negative TB test result and state-mandated immunizations are required. **CSU**

**Child Development 120B
School-Age Child Care and Recreation Activities (DS5)
(Formerly: Human Development 121, School Age Child Care Activities (DS5))**

Unit(s): 3.0
Class Hours: 48 Lecture total.
Prerequisite: Child Development 107, 108 and 120A (CDEV 120A may be previously or concurrently enrolled).

Focuses on school-age creative activities including planning and implementing an appropriate before and after school curriculum. Attention will be paid to integrating academics, recreation and creative activities suitable for school-age child care programs. Field trips and field-based assignments may be required. **CSU**

**Child Development 205
Introduction to Children with Special Needs
(Formerly: Human Development 205, Exceptionality and Special Needs in Human Development)**

Unit(s): 3.0
Class Hours: 48 Lecture total.

Introduces the variations in development of children with special needs ages birth through eight and the resulting impact on families. Includes an overview of historical and societal influences, laws relating to children with special needs, and the identification and referral process. Field trips and field-based assignments may be required. **CSU**

**Child Development 206
Curriculum and Strategies for Children with Special Needs
(Formerly: Human Development 208, Working With Families of Children With Special Needs)**

Unit(s): 3.0
Class Hours: 48 Lecture total.
Prerequisite: Child Development 205.

Covers curriculum and intervention strategies for working with children with special needs in partnership with their families. Focuses on the use of observation and assessment in meeting the individualized needs of children in inclusive and natural environments. Includes the role of the teacher as a professional working with families, collaboration with interdisciplinary teams, and cultural competence. Field trips and field-based assignments may be required. **CSU**

**Child Development 215
Administration I: Programs in Early Childhood Education (DS6)**

Unit(s): 3.0
Class Hours: 48 Lecture total.
Recommended Preparation: Twelve (12) units in early childhood education.

Introduction to the administration of early childhood programs. Covers program types, budget, management, regulations, laws, development and implementation of policies and procedures. Examines administrative tools, philosophies, and techniques needed to organize, open, and operate an early care and education program. Field trips and field-based assignments may be required. A negative TB test result and state-mandated immunizations are required. **CSU**

**Child Development 216
Administration II: Personnel and Leadership in Early Childhood Education (DS6)**

Unit(s): 3.0
Class Hours: 48 Lecture total.
Recommended Preparation: Child Development 215 and twelve (12) units of early childhood education.

This course acquaints students with effective strategies for personnel management and leadership in early care and education settings. Includes legal and ethical responsibilities, supervision techniques, professional development, and reflective practices for a diverse and inclusive early care and education program. Field trips and field-based assignments may be required. A negative TB test result and state-mandated immunizations are required. **CSU**

**Child Development 220
The Child As Victim**

Unit(s): 3.0
Class Hours: 48 Lecture total.
Exploration of battered, molested, and neglected children from five vantage points: child, law, parents, social services and education. **CSU**

**Child Development 221
Living and Teaching in a Diverse Society
(Formerly: Human Development 221, Teaching in a Diverse Society)**

Unit(s): 3.0
Class Hours: 48 Lecture total.

Examines the impact of various societal influences on the development of children's social identity. Covers developmentally appropriate, inclusive and anti-bias approaches. Self examination and reflection on issues related to social identity, stereotypes, and bias will be emphasized. Field trips and field-based assignments may be required. **CSU**

**Child Development 250
Adult Supervision and Mentoring in Early Care and Education**

Unit(s): 2.0
Class Hours: 32 Lecture total.
Prerequisite: Child Development 111B, 116B or 120B.

Methods and principles of supervising student teachers, volunteers, staff, and other adults in early care and education settings. Emphasis is on the roles and development of early childhood professionals as mentors and leaders. Field trips and field-based assignments may be required. **CSU**



**Child Development 298A
Practicum in Early Childhood Programs**

Unit(s): 3.5

Class Hours: 32 Lecture total, 75 Laboratory total.

Prerequisite: Child Development 110, 111B, 112, 205 and 221.

Under guided supervision in a Rancho Santiago Community College District (RSCCD) Child Development Center or approved mentor site, students will utilize practical classroom experiences to make connections between theory and practice, develop professional behaviors, and build a comprehensive understanding of children and families. reflective practice will be emphasized as student teachers design, implement and evaluate approaches and strategies, and techniques that promote development and learning. Field trips and field-based assignments required. A negative TB test result and state-mandated immunizations are required. **CSU**

**Child Development 298B
Practicum in Infant/Toddler Programs**

Unit(s): 3.5

Class Hours: 32 Lecture total, 75 Laboratory total.

Prerequisite: Child Development 110, 112, 116B, 205 and 221.

Under guided supervision in a Rancho Santiago Community College District (RSCCD) Child Development Center or approved mentor site, students will utilize practical classroom experiences to make connections between theory and practice, develop professional behaviors, and build a comprehensive understanding of children and families. reflective practice will be emphasized as student teachers design, implement and evaluate approaches and strategies, and techniques that promote development and learning for infants and toddlers. Field trips and field-based assignments required. A negative TB test result and state-mandated immunizations are required. **CSU**

CHINESE (CHNS)

Division of Arts, Humanities and Social Sciences

Dean: Marilyn Flores

Department Chair, Modern Languages: Elizabeth Baez

**Chinese 101
Elementary Chinese I**

Unit(s): 5.0

Class Hours: 80 Lecture total, 16 Laboratory total.

Practice and integration of pronunciation, grammar, vocabulary, and common idioms through listening, speaking, reading, and writing to begin to express thoughts orally and in writing. The class will also introduce students to cultural, social and linguistic items appropriate to Chinese-speaking societies. Chinese 101 is equivalent to two years of high school Chinese. **CSU/UC**

**Chinese 102
Elementary Chinese II**

Unit(s): 5.0

Class Hours: 80 Lecture total, 16 Laboratory total.

Prerequisite: Chinese 101 or two years of high school Chinese with a grade of C or better.

Continuation of Chinese I which furthers training in language skills providing avenues for the expression of ideas in both oral and written forms and provides enhanced study of cultural and socio-linguistic knowledge aspects appropriate to Chinese-speaking societies. Chinese 102 is equivalent to the third year of high school Chinese. **CSU/UC**



COMMUNICATION (COMM)

Division of Arts, Humanities and Social Sciences

Dean: Marilyn Flores

Department Chair, Communication: Tara Kubicka-Miller

Faculty: Michael DeCarbo, Jared Kubicka-Miller, Tara Kubicka-Miller, Melinda Womack

Associate in Arts

Communication Studies for Transfer (30558)

The Associate in Arts in Communication Studies for Transfer degree provides training to build and maintain personal and professional relationships through effective communication. Completion of the transfer degree in Communication prepares students to: (1) Communicate with clarity and accuracy in diverse environments, (2) Act with awareness of self amongst local and global communities, (3) Think critically, creatively and reflectively, and (4) Learn about the self in professional and interpersonal relationships. Successful completion of the transfer degree in Communication guarantees the student acceptance to the California State University system to pursue a baccalaureate degree, in the field of business, industry, government, social service, and/or education in such areas as teaching, public speaking, consulting, law, announcing, and public relations.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Better manage apprehension in communication settings.
- Present the self appropriately and effectively through verbal and nonverbal communication.

Major requirements*	Units
Communication 110, Public Speaking	3
Select two (2) courses from the following (List A):	6
Communication 100/100H, Introduction to Interpersonal Communication (3)	
Communication 101, Group Dynamics (3)	
Communication 111, Argumentation and Debate (3)	
Select two (2) courses from the following (List B):	6
An additional course from List A (3)	
(may not be a course used to satisfy the requirements in List A)	
Communication 120/120H, Introduction to Intercultural Communication (3)	
Communication 134, Oral Interpretation (3)	
Select one (1) course from the following (List C):	3-4
An additional course from List A or B (3)	
(may not be a course used to satisfy the requirements in List A or B)	
Communication 135, Reader's Theatre (3)	
Communication 225/225H, Gender Communication (3)	
English 102/102H, Literature and Composition (4)	
English 103/103H, Critical Thinking and Writing (4)	
TOTAL	18-19

Associate of Arts

Communication (11929)

The Associate of Arts degree in Communication provides training for communicating and dealing with people. Completion of the associate of arts degree in communication prepares students to: (1) Communicate with clarity and accuracy, and in diverse environments, (2) Act with awareness of self and both the local and global communities of persons, (3) Think critically, creatively and reflectively, and (4) Learn about self and others, academic and professional issues. The associate of arts in communication degree prepares the student to move into a curriculum at a four-year institution leading to a baccalaureate degree, and then into careers in the field of business, industry, government, social service, or education in such areas as teaching, public speaking, consulting, law, announcing, public speaking and public relations.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Present the self appropriately and effectively through verbal and nonverbal communication.
- Better manage apprehension in communication settings.

Major requirements*

	Units
Relationship Emphasis, select three (3) units from the following:	3
Communication 100/100H, Introduction to Interpersonal Communication (3)	
Communication 101, Group Dynamics (3)	
Delivery Emphasis, select three (3) units from the following:	3
Communication 110, Public Speaking (3)	
Communication 111, Argumentation and Debate (3)	
Diversity Emphasis, select three (3) units from the following:	3
Communication 120/120H, Introduction to Intercultural Communication (3)	
Communication 225/225H, Gender Communication (3)	
Performance Emphasis, select three (3) units from the following:	3
Communication 130, Forensics Team (4-6)	
Communication 131, Individual Events (2)	
Communication 132, Team Events (2)	
Communication 133, Voice and Diction for Effective Communication (3)	
Communication 134, Oral Interpretation (3)	
Communication 135, Reader's Theatre(3)	
Communication 230, Advanced Forensics Team (4-6)	
Communication 231, Individual Events (2)	
Communication 232, Team Events (2)	
Select six (6) units from the following:	6
Any of the above courses not already completed, but no more than 2 additional units of Communication 130, Communication 131, Communication 132, Communication 230, Communication 231, or Communication 232 (3.5-6)	
Communication 102, Listening (1.5)	
Library and Information Studies 103, Advanced Internet Research (1)	
TOTAL	18

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Courses

Communication 100

Introduction to Interpersonal Communication

Unit(s): 3.0

Class Hours: 48 Lecture total.

Recommended Preparation: Concurrent enrollment in English 101/101H.

Introduction to communication skills of listening, perception, language usage, non-verbal communication, and conflict management; emphasizing methods of overcoming barriers to effective communication in interpersonal relationships. **CSU/UC (C-ID)**

Communication 100H

Honors Introduction to Interpersonal Communication

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: A high school or college GPA of 3.0 or above.

Recommended Preparation: Concurrent enrollment in English 101/101H.

Enriched approach for honors students. Highly interactive seminar mode of instruction. Stresses the development of analytical thinking, writing, and speaking skills. An introduction to communication skills of listening, perception, language usage, non-verbal communication, and conflict management, emphasizing methods of overcoming barriers to effective communication in interpersonal relationships. **CSU/UC (C-ID)**

Communication 101

Group Dynamics

Unit(s): 3.0

Class Hours: 48 Lecture total.

Principles and methods of communication as applied in the small group setting. Emphasis on communication skills, processes, and operations in the small group. Includes understanding group dynamics and cooperative problem solving. **CSU/UC (C-ID)**

Communication 102

Listening

Unit(s): 1.5

Class Hours: 24 Lecture total.

For students wanting to assess and improve their current listening/responding capabilities. Emphasizes appropriate application of skills. **CSU**

Communication 110

Public Speaking

Unit(s): 3.0

Class Hours: 48 Lecture total.

Teaches critical thinking skills in relation to public speaking. Emphasis on the process, principles and major facets of critical thinking with practice through oral presentations. **CSU/UC (C-ID)**

Communication 111

Argumentation and Debate

Unit(s): 3.0

Class Hours: 48 Lecture total.

Recommended Preparation: English 101/101H or concurrent enrollment.

Principles of debate techniques with emphasis on methods of logical analysis and reflective thinking. Practical application through adaptation of material to forms of debate on current issues. **CSU/UC (C-ID)**

Communication 120

Introduction to Intercultural Communication

Unit(s): 3.0

Class Hours: 48 Lecture total.

A general view of the sociological, psychological, and communication patterns of major cultural groups. Special emphasis on the methods, skills, and techniques necessary for effective intercultural and crosscultural communication. **CSU/UC (C-ID)**

Communication 120H

Honors Introduction to Intercultural Communication

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: A high school or college GPA of 3.0 or above.

Enriched for honors students. In-depth, seminar format examination of sociological, psychological, and communication patterns of major cultural groups. Methods, skills, and techniques for effective intercultural communication. Stresses analytical thinking skills. **CSU/UC (C-ID)**

Communication 130

Forensics Team

Unit(s): 4.0-6.0

Class Hours: 48 Lecture total, 48-144 Laboratory total.

This course is designed to prepare students to participate in intercollegiate speech competition. Instruction and direction for the preparation, creation and performance of interpretation of literature programs, limited preparation speeches, readers' theater, public debate, and general public address. Students are required to participate in off-campus forensics events. May be repeated. **CSU**

Communication 131

Individual Events

Unit(s): 2.0

Class Hours: 96 Laboratory total.

Individual Forensics events training for intercollegiate speech competition. Instruction and direction for the preparation, creation and performance of: interpretation of literature programs, limited preparation speeches, and general public address. Students are required to participate in off campus forensics events. May be repeated. **CSU**

Communication 132

Team Events

Unit(s): 2.0

Class Hours: 96 Laboratory total.

Team Forensics events training for intercollegiate speech competition. Instruction and direction for the creation and performance of readers' theater. Preparation for current event debates and limited preparation parliamentary debate. Student has the opportunity to participate in community and civil debates. Students are required to participate in off campus forensics events. May be repeated. **CSU**

Communication 133

Voice and Diction for Effective Communication

Unit(s): 3.0

Class Hours: 48 Lecture total.

Basic speech and voice production. Anatomy and physiology related to respiration (breathing/loudness), phonation (sound/pitch) and articulation (diction/clarity). Practice in improving vocal skills for effective communication. Designed for individuals who have special demands on vocal production in their vocation. **CSU**

Communication 134

Oral Interpretation

Unit(s): 3.0

Class Hours: 48 Lecture total.

Performance of prose, poetry, and drama; practice in speaking, interpretation, and analysis of literature, with training in the principles of effective delivery. **CSU/UC (C-ID)**

Communication 135

Reader's Theatre

Unit(s): 3.0

Class Hours: 48 Lecture total.

Research, construct, rehearse, and perform interpretation of literature in an ensemble theatrical setting. Learn basic elements of choral reading, singing, and movement. **CSU/UC**



**Communication 225
Gender Communication**

Unit(s): 3.0
Class Hours: 48 Lecture total.
Recommended Preparation: Communication 100, 100H, 101, 110 or 111.

Practical application, techniques and in-depth analysis of male and female communication regarding language usage, biological and social influences, mass media, marriage, organizations, same-sex/cross-sex friendships and education. **CSU/UC**

**Communication 225H
Honors Gender Communication**

Unit(s): 3.0
Class Hours: 48 Lecture total.
Prerequisite: A high school or college GPA of 3.0 or above.
Recommended Preparation: Communication 100, 100H, 101, 110 or 111.

Enriched approach in application, techniques and in-depth analysis of male and female communication regarding language usage, biological and social influences, mass media, marriage, organizations, same-sex/cross-sex friendships and education. Students will be required to do individual/group professor-guided research. **CSU/UC**

**Communication 230
Advanced Forensics Team**

Unit(s): 4.0-6.0
Class Hours: 48 Lecture total, 48-144 Laboratory total.
Prerequisite: Communication 130.

This course is designed to prepare students to participate at an advanced level in intercollegiate speech competition. Includes instruction and direction for the junior competition of: interpretation of literature programs, limited preparation speeches, readers' theater, public debate, and general public address. Focuses on mentoring and coaching novice members. Students are required to participate in off-campus forensics events. May be repeated. **CSU**

**Communication 231
Individual Events**

Unit(s): 2.0
Class Hours: 96 Laboratory total.
Prerequisite: Communication 130.

Individual Forensics event training for Junior level intercollegiate speech competition. Instruction and direction for the preparation, creation and performance of: interpretation of literature programs, limited preparation speeches, and general public address. Students are required to participate in off campus forensics events. May be repeated. **CSU**

**Communication 232
Team Events**

Unit(s): 2.0
Class Hours: 96 Laboratory total.
Prerequisite: Communication 130.

Team Forensics events training for Junior intercollegiate speech competition. Instruction and direction for the creation and performance of readers' theater. Preparation for current event debates and limited preparation parliamentary debate. Participate in community performance and civic debates. Students are required to participate in off campus forensics events. May be repeated. **CSU**

COMPUTER INFORMATION SYSTEMS (CIS)

Division of Business and Career Technical Education

Dean: Von Lawson
Department Co-Chairs, Business: Steven Deeley, Stewart Myers
Faculty: Ronald Kessler, Stewart Myers, Andy Salcido

The Associate of Science degree and Certificate of Achievement in Computer Information Systems are concerned with the development of procedures which are effective and efficient, computer languages suitable for starting these procedures, and systems for executing the procedures. This may include the ability to write programs in Visual BASIC, C++ or Java and applications such as Excel. Graduates of the program are prepared for employment as trainees in information systems, computer programming, and systems analysis. Completion of the degree provides background for curriculum at a four-year institution such as the California State University system at Fullerton or Pomona. Students intending to obtain a bachelor's degree in Computer Information Systems should consult the major requirements for upper-division standing listed under the Business Administration major at the school of their choice.

**Associate of Science
Computer Information Systems (11902)**

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Demonstrate knowledge of software applications.
- Demonstrate knowledge and practice of CIS systems and computer science.

Major requirements*	Units
Accounting 101, Financial Accounting	4
Business 150, Introduction to Information Systems and Applications	3
Computer Information Systems 106, Microsoft Excel	3
Computer Science 105, Visual BASIC Programming	3
Computer Science 112, Java Programming	3
Computer Science 120, Introduction to Programming	3
Select one (1) course from the following:	3-4
Accounting 102, Managerial Accounting (4)	
Computer Information Systems 103, Microsoft Word (3)	
Computer Information Systems 108, Microsoft Access (3)	
Computer Information Systems 110/Public Works 110, Introduction to Microsoft Project (3)	
Computer Information Systems 130, HTML and JavaScript (3)	
Computer Information Systems 132, JavaScript (3)	
Computer Information Systems 203, Windows 8 Store Applications with JavaScript (3)	
Computer Science 121, Programming Concepts (3)	
Computer Science 205, Advanced Visual Basic (3)	
Computer Science 213, C# Programming (3)	
TOTAL	22-23

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Certificate of Achievement Computer Information Systems (21647)

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Demonstrate knowledge and practice of CIS systems and computer science.
- Demonstrate knowledge of software applications.

Certificate requirements	Units
Accounting 101, Financial Accounting	4
Business 150, Introduction to Information Systems and Applications	3
Computer Information Systems 106, Microsoft Excel	3
Computer Science 105, Visual BASIC Programming	3
Computer Science 112, Java Programming	3
Computer Science 120, Introduction to Programming	3
Select one (1) course from the following:	3-4
Accounting 102, Managerial Accounting (4)	
Computer Information Systems 103, Microsoft Word (3)	
Computer Information Systems 108, Microsoft Access (3)	
Computer Information Systems 110/Public Works 110, Introduction to Microsoft Project (3)	
Computer Information Systems 130, HTML and JavaScript (3)	
Computer Information Systems 132, JavaScript (3)	
Computer Information Systems 203, Windows 8 Store Applications with JavaScript (3)	
Computer Science 121, Programming Concepts (3)	
Computer Science 205, Advanced Visual Basic (3)	
Computer Science 213, C# Programming (3)	
TOTAL	22-23

Courses

Computer Information Systems 101

Introduction to Microsoft Office

Unit(s): 3.0

Class Hours: 48 Lecture total.

Learn the basics of Microsoft Office, a suite of applications for Windows (Word, Excel, Access and PowerPoint). Acquire skills for creating, formatting, printing and editing business documents. **CSU**

Computer Information Systems 103

Microsoft Word

Unit(s): 3.0

Class Hours: 48 Lecture total.

Recommended Preparation: Ability to type.

Step-by-step procedures are taught for creating, editing, and printing business documents with Microsoft Word. **CSU**

Computer Information Systems 105

Introduction to Microsoft Excel

Unit(s): 1.5

Class Hours: 24 Lecture total.

Introduction to Excel spreadsheets including formatting, graphics, and formulas common to business applications. Prepares student for MS Excel Certification. **CSU**

Computer Information Systems 106

Microsoft Excel

Unit(s): 3.0

Class Hours: 48 Lecture total.

Introduction to Microsoft Excel and how it facilitates solving business problems. Covers data management and reporting using spreadsheets, charts, database tools and macros. **CSU**

Computer Information Systems 108

Microsoft Access

Unit(s): 3.0

Class Hours: 48 Lecture total.

Relational Database Management using Microsoft Access. Includes design, creation and maintenance of a Relational Database Management System (RDBMS), reports and form generation, queries, importing and exporting data, macros and modules using Access. **CSU**

Computer Information Systems 110

Introduction to Microsoft Project

Unit(s): 3.0

Class Hours: 48 Lecture total.

How to plan a project, identify and create tasks, estimate workloads and durations, setup project schedules, maintain the schedule, assign resources, connect resources to tasks, setup a project budget, track progress utilize reports and close a project using Microsoft Project. (Same as Public Works 110.) **CSU**

Computer Information Systems 124

Adobe Photoshop

Unit(s): 3.0

Class Hours: 48 Lecture total.

Students learn how to use the capabilities of Adobe Photoshop, an image editing program, to enhance the creativity and production of desktop projects. Previous class in scanning is advisable. **CSU**

Computer Information Systems 126

Website Development for Business

Unit(s): 3.0

Class Hours: 48 Lecture total.

Learn the basic concepts of website design, development and publishing using HTML (Hypertext Markup Language). Students will design and create a functional web site incorporating hyperlinks, tables, frames, forms, and digital graphics images. **CSU**

Computer Information Systems 130

HTML and JavaScript

Unit(s): 3.0

Class Hours: 48 Lecture total.

Introduction to Hypertext Markup Language (HTML) and JavaScript (JS) and the creation of Hypertext documents. Topics will include the specification of the form and function of documents, inclusion of hypertext links, images, tables, forms, JavaScript functions, and new features of HTML and JS as they relate to web programming. **CSU**

Computer Information Systems 132

JavaScript

Unit(s): 3.0

Class Hours: 48 Lecture total.

Students will be introduced to the syntax of JavaScript, the methods used to incorporate JavaScripts into HTML documents, and using JavaScripts to create interactive forms. Students will also learn to enhance Web Pages through the use of Interactive Programming utilizing Forms, Frames, Documents, Windows, Loops, Strings, and Cookies. **CSU**

Computer Information Systems 159

Introduction to iOS/iPhone Mobile App Development

Unit(s): 3.0

Class Hours: 48 Lecture total.

Introduction to mobile application development for iPhones and other iOS devices using beginning programming concepts and skills. **CSU**



**Computer Information Systems 203
Windows 8 Store Applications with JavaScript**

Unit(s): 3.0
Class Hours: 48 Lecture total.
Recommended Preparation: Computer Science 213 or experience with C#.

Students will be introduced to the Windows 8 store applications model which use HyperText Markup Language (HTML) 5 and JavaScript to create applications. Students will use Extensible Application Markup Language (XAML), JavaScript, Extensible Markup Language (XML) and Cascading Style Sheets (CSS) to create interactive apps suitable for uploading to the Windows store. **CSU**

**Computer Information Systems 259
Advanced iOS/iPhone Mobile App Development**

Unit(s): 3.0
Class Hours: 48 Lecture total.
Recommended Preparation: Computer Information Systems 159 or similar programming experience.

Advanced techniques for mobile application development for iPhones and other iOS devices using Objective-C programming. **CSU**

COMPUTER SCIENCE (CMPR)

Division of Business and Career Technical Education

Dean: Von Lawson
Department Co-Chairs, Business: Steven Deeley, Stewart Myers
Faculty: Ronald Kessler, Stewart Myers

Computer science courses are designed to meet the varying goals of students interested in employment or education in the computer field. There are courses on specific languages for professionals who want to supplement their skills with the knowledge of a current programming language (PC assembler, C++, Visual BASIC, Java). A certificate in computer science can be earned by those students desiring to enter the workplace at entry-level positions. Also, an associate degree can be earned by those students desiring to transfer to a four-year institution with a major in Computer Science.

The computer science courses provide instruction in low level and high level languages, intermediate and advanced techniques in programming, and hardware organization.

**Associate in Science
Computer Science for Transfer (33379)**

The Associate in Science in Computer Science for Transfer degree prepares students to move into a curriculum at a four-year institution leading to a baccalaureate degree. Employment opportunities are available as programmers in government, business and education. Successful completion of the transfer degree in Computer Science guarantees the student acceptance to the California State University system to pursue a baccalaureate degree in Computer Science or a related field.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Apply knowledge of mathematics, science, and computer science to identify, formulate, and solve computer science problems.

Major requirements	Units
Computer Science 122, Programming Concepts and Methodology I	3
Computer Science 132, Programming Concepts and Methodology II	3
Computer Science 149, Discrete Structures for Computer Science	3
Computer Science 154, Computer Architecture and Organization	3
Mathematics 180/180H, Single Variable Calculus I	4
Mathematics 185, Single Variable Calculus II	4
Physics 250A, Physics for Scientists and Engineers I	5
Physics 250B, Physics for Scientists and Engineers II	5
TOTAL	30

NOTE: Only IGETC for the UC and CSU (Plan C) will be accepted towards completion of the general education portion of this degree. Unlike other Associate Degrees for Transfer, CSU GE Breadth (Plan B) completion will not be accepted.

An Oral Communication course, IGETC Area 1C, must be completed in order to meet CSU admission requirements.

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Associate of Science Computer Science (11903)

The Associate of Science degree and Certificate of Achievement in Computer Science lead to entry-level employment in computer science, engineering and other areas where high aptitude in computer programming is recognized. The programs prepare students for careers as engineering aides, scientific computing technicians and junior programmers. The programs also prepare students to transfer to a university with a major in Computer Science.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Demonstrate knowledge and practice of computer information systems and computer science.

Major requirements*	Units
Computer Science 100, The Computer and Society	3
Computer Science 105, Visual BASIC Programming	3
Computer Science 112, Java Programming	3
Computer Science 120, Introduction to Programming	3
Computer Science 121, Programming Concepts	3
Computer Science 213, C# Programming	3
TOTAL	18

Certificate of Achievement Computer Science (21649)

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Demonstrate knowledge and practice of computer science.

Certificate requirements	Units
Computer Science 100, The Computer and Society	3
Computer Science 105, Visual BASIC Programming	3
Computer Science 112, Java Programming	3
Computer Science 120, Introduction to Programming	3
Computer Science 121, Programming Concepts	3
Computer Science 213, C# Programming	3
TOTAL	18

Certificate of Proficiency Applied Robotics and Embedded Programming

The Certificate of Proficiency in Applied Robotics and Embedded Programming will lead to entry-level employment in computer science, engineering and other areas where high aptitude in computer programming is recognized. The program prepares students for careers as robotics technicians, engineering technicians, and junior programmers.

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Demonstrate and apply knowledge of common microprocessors and design software applications which can be used in industry-standard embedded devices.

Certificate requirements	Units
Computer Science 112, Java Programming	3
Computer Science 157, Introduction to Robotics Programming	3
Computer Science 205, Advanced Visual Basic	3
Computer Science 213, C# Programming	3
Computer Science 257, Applied Robotics and Embedded Programming	3
TOTAL	15

Courses

Computer Science 100

The Computer and Society

Unit(s): 3.0

Class Hours: 48 Lecture total.

An introduction to the area of computers and their relationship to today's information society. Examines a broad overview of topics including: hardware, software, networking, information technology, and the internet. The student will explore the implication and effect of technology on society, careers and ethics. **CSU/UC**

Computer Science 105

Visual BASIC Programming

Unit(s): 3.0

Class Hours: 48 Lecture total.

Introduction to programming and Visual BASIC. Emphasis on programming fundamentals and the creation of applications with Visual BASIC. No previous programming experience required. **CSU/UC**

Computer Science 112

Java Programming

Unit(s): 3.0

Class Hours: 48 Lecture total.

Study of the Java language, its features and applications. **CSU/UC**

Computer Science 120

Introduction to Programming

Unit(s): 3.0

Class Hours: 48 Lecture total, 16 Laboratory total.

Prerequisite: Mathematics 080.

Introduction to programming concepts including data types, mathematical operations, elementary input/output, and the basic control structures of sequence, selection, iteration and functions. Program design techniques utilizing structured and object-oriented methodologies will be emphasized. **CSU/UC**

Computer Science 121

Programming Concepts

Unit(s): 3.0

Class Hours: 48 Lecture total, 16 Laboratory total.

Prerequisite: Computer Science 120.

Continuing introduction to programming concepts, development of algorithms utilizing functions, classes and the primary control structures. Program I/O; strings and arrays; data types: classes and objects. Documentation techniques. **CSU/UC**



Computer Science 122
Programming Concepts and Methodology I

Unit(s): 3.0

Class Hours: 48 Lecture total.

Recommended Preparation: Computer Science 120.

Introduces the discipline of computer science using a high-level language, utilizing programming and practical hands-on problem solving. This is the first course in a sequence of courses that is compliant with the standards of the Association for Computing Machinery (ACM). *CSU*

Computer Science 129
Introduction to Computer Organization

Unit(s): 4.0

Class Hours: 64 Lecture total.

Recommended Preparation: Computer Science 120 or equivalent.

Presents the organization and structure of computers at hardware and software levels: analysis and synthesis of combinatorial and sequential logic, data representation and manipulation, language structures and translation, and process administration and management. *CSU/UC*

Computer Science 131
Data Structures Concepts

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: Computer Science 121.

Application of simple Data Structures Concepts (ADT's) including linked structures, stacks, queues and trees. Use of pointers, recursion, sorting algorithms, classes and object-oriented programming to implement Data Structures. *CSU/UC*

Computer Science 132
Programming Concepts and Methodology II

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: Computer Science 122.

Application of software engineering techniques to the design and development of large programs: data abstraction and structures and associated algorithms. This is the second course in a sequence of courses that is compliant with the standards of the Association of Computing Machinery (ACM). *CSU*

Computer Science 149
Discrete Structures for Computer Science

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: Computer Science 122.

Recommended Preparation: Mathematics 105, 140 or 219/219H.

This course is an introduction to the discrete structures used in Computer Science with an emphasis on their applications. Topics covered include: Functions; Relations and Sets; Basic Logic; Proof Techniques; Basics of Counting; Graphs and Trees; and Discrete Probability. This course is compliant with the standards of the Association for Computing Machinery (ACM). *CSU*

Computer Science 154
Computer Architecture and Organization
(Formerly: Computer Science 129, Introduction to Computer Organization)

Unit(s): 3.0

Class Hours: 48 Lecture total.

Recommended Preparation: Computer Science 122.

The organization and behavior of real computer systems at the assembly language level. Topics include number systems and data representation, addressing techniques, memory management, interrupt handling, recursion, subroutines, arrays, and the implementation of high-level language constructs at the machine-language level. This course is compliant with the standards of the Association for Computing Machinery (ACM). *CSU/UC*

Computer Science 157
Introduction to Robotics Programming

Unit(s): 3.0

Class Hours: 48 Lecture total.

Introduction to Robotics Programming using the LEGO Mindstorms platform. Basic mechanical, electronics, and control issues in Robotics are discussed, including the design and implementation of robotic systems. Students program a robot using several programming languages including the LEGO "NXT-G" programming language, as well as RobotC, Not Exactly C (NXC), and Visual Basic. *CSU*

Computer Science 205
Advanced Visual Basic

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: Computer Science 105.

Advanced programming for those seeking to further develop their skills using Visual Basic programming language. Course will cover the advanced features of the Visual Basic programming language, data structures and advanced programming techniques available with Visual Basic. *CSU/UC*

Computer Science 213
C# Programming

Unit(s): 3.0

Class Hours: 48 Lecture total.

Recommended Preparation: Computer Science 121.

Study of C# programming. Topics covered include the .NET environment, object-oriented programming, relational databases, and creation of graphical user interfaces. *CSU/UC*

Computer Science 257
Applied Robotics and Embedded Programming

Unit(s): 3.0

Class Hours: 48 Lecture total.

Introduction to microprocessors for devices used in robotics, telephones, tablet PC's, the automotive industry, and home automation. The Basic Stamp and Propeller microprocessors and Single-Board Computers (SBC) will be used to design and implement robotic systems using PBasic and RobotC programming languages. *CSU*



COSMETOLOGY (COSM)

Division of Business and Career Technical Education

Dean: Von Lawson

The Associate of Science degree in Cosmetology is designed to exceed minimum California Board of Barbering and Cosmetology standards. Students will experience a combination of lecture and laboratory instruction covering various topics such as hairdressing, chemical waving and straightening, haircutting and shaping, hair coloring, scalp and hair treatments, facials, manicuring, and operation of a beauty salon. Proficiencies to be developed include principles of sanitation, as well as laws and administrative regulations. Courses are offered on an open enrollment basis and students may enroll at any time. Students are required to purchase a basic cosmetology kit.

If you are enrolled in the Cosmetology program and have been awarded Federal Financial Aid, your payments will be calculated at the federal formula conversion rate according to the current Federal Student Aid Handbook. This formula is used to calculate the timing of financial aid award disbursements. The Esthetician program is not eligible for federal financial aid. If you have questions, please contact the SCC Financial Aid Office at 714-628-4876.

Associate of Science Cosmetology (11948)

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Demonstrate and apply knowledge of principles, procedures and practices of cosmetology according to the California Board of Barbering and Cosmetology.

Major requirements*	Units
Cosmetology 040, Cosmetology	38
TOTAL	38

Certificate of Achievement Cosmetology (21674)

Learning Outcome(s)

- Demonstrate and apply knowledge of principles, procedures and practices of cosmetology according to the California Board of Barbering and Cosmetology.

Major requirements*	Units
Cosmetology 040, Cosmetology	38
TOTAL	38

Certificate of Proficiency Esthetician

The Certificate of Proficiency in Esthetician is designed to exceed minimum California Board of Barbering and Cosmetology standards. Students will experience a combination of lecture and laboratory instruction covering various topics such as manual, electrical and chemical facials. Proficiencies to be developed include principles of sanitation, client management as well as laws and administrative regulations. Courses are offered on an open enrollment basis and students may enroll at any time. Students are required to purchase a basic cosmetology kit.

Learning Outcome(s)

- Demonstrate and apply knowledge of principles, procedures and practices of skin care according to the California Board of Barbering and Cosmetology.

Certificate requirements	Units
Cosmetology 080, Esthetician	13
TOTAL	13

Certificate of Proficiency Manicuring

The Certificate of Proficiency in Manicuring is designed to exceed minimum California Board of Barbering and Cosmetology standards. Students will experience a combination of lecture and laboratory instruction covering various topics such as manicuring, pedicuring and client management. Proficiencies to be developed include principles of sanitation, as well as laws and administrative regulations. Courses are offered on an open enrollment basis and students may enroll at any time. Students are required to purchase a basic cosmetology kit.

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Demonstrate and apply knowledge of principles, procedures and practices of manicuring according to the California Board of Barbering and Cosmetology.

Certificate requirements	Units
Cosmetology 050, Manicuring	8
TOTAL	8

Courses

Cosmetology 040 Cosmetology

Unit(s): 0.5-38.0

Class Hours: 9-680 Lecture total, 12-920 Laboratory total.

Principles and practices in cosmetology. Preparation for Board Examination for licensing by the State of California Board of Barbering and Cosmetology. Laboratory participation includes student demonstration that all performance objectives have been met. Basic cosmetology kit at student's expense. Open Entry/Open Exit.

Cosmetology 050 Manicuring

Unit(s): 0.5-8.0

Class Hours: 3-50 Lecture total, 22-350 Laboratory total.

Complete instruction of nail care as required by State Board of Barbering and Cosmetology for licensure preparation to operate a nail salon. Nail sculpture included. All phases of artificial nails covered. Student must purchase basic manicuring tools. Open Entry/Open Exit.



**Cosmetology 070
Barbering**

Unit(s): 0.5-35.0

Class Hours: 8-525 Lecture total, 14-975 Laboratory total.

Instruction in the theory of barbering as required by the State Board of Barbering and Cosmetology and licenser preparation. Barbering kit at student's expense. Open Entry/Open Exit.

**Cosmetology 080
Esthetician**

Unit(s): 0.5-13.0

Class Hours: 3-75 Lecture total, 20-525 Laboratory total.

Instruction in the theory and practical applications of an esthetician as required by the State of California Barbering and Cosmetology Board. Basic skin care tools at student's expense. Open Entry/Open Exit.

COUNSELING (CNLS)

Division of Counseling and Student Support Services

Interim Dean: Jennifer Coto

Department Co-Chairs, Counseling: Phillip Crabill, Dora Escobar

Faculty: Leonor Aguilera, Nena Baldizon-Rios, Rudy Carrion, Maria Chaidez, Phillip Crabill, Jennifer Coto, Dora Escobar, Rosemarie Enriquez, Juana Galvan, Song Graham, Lacy Hedenberg, Janis Perry, Barry Resnick, Judy Strother

The Counseling Department offers counseling classes that provide students an opportunity to discover their interests, values, personality and skills. These courses allow students to learn more about themselves as they explore careers and majors and to develop comprehensive student education plans to help them reach their educational goals.

Courses

Counseling 101

Educational, Personal, Cultural, and Career Exploration

Unit(s): 3.0

Class Hours: 48 Lecture total.

Designed to promote academic and career success by exploring student development from an educational, sociological, psychological and physiological perspective. Exploration of higher education opportunities, potential career interests and a focus on educational planning. Recommended for students planning to complete an associate degree and/or transfer to a university. Field trips may be required. **CSU/UC**

Counseling 106

Inquiries Into Higher Education

Unit(s): 1.0

Class Hours: 16 Lecture total.

A comprehensive and advanced study of selecting and completing an academic plan, developing goals and objectives and choosing a college major. Topics include: study techniques, assessing interests and skills and planning a major. Grade: Pass/No Pass. **CSU**

Counseling 110

University Transfer Research

Unit(s): 0.5-2.0

Class Hours: 8-32 Lecture total.

Development and enhancement of decision-making strategies for transfer students. Identification of education/career goals. Analysis, comparison, and evaluation of university admission, major, and post-graduate requirements and student services. On-site research/field study at universities. Field trips required. **CSU**

Counseling 111

Learning Skills Development

Unit(s): 1.0

Class Hours: 16 Lecture total.

Application of educational/psychological principles in the development of effective learning skills for college courses. Topics also include identifying diversities of cultural influence, learning style, time management, textbook study/comprehension, note-taking, research preparation, and testing. **CSU**

**Counseling 113****Learning Strategies for College Success**

Unit(s): 3.0

Class Hours: 48 Lecture total.

Students will develop learning strategies that will help them to succeed in college level courses. Students will learn to establish effective study habits suited to individual learning styles by focusing on technique and practice. Learning Strategies surveyed will include: time management, listening, notetaking, textbook study, exam preparation, memory techniques, library skills and critical reading. Students will be introduced to lifestyle techniques that promote a healthy work/ life balance for busy college students and working adults. *CSU*

Counseling 116**Career/Life Planning and Personal Exploration**

Unit(s): 3.0

Class Hours: 48 Lecture total.

The course is designed to assist students in successfully establishing and achieving education, career and life goals. Students are guided through a reflective process that focuses on values, interests, personality, skills and learning styles. Career and education options are researched, and students are exposed to college resources and support services. Decision making models and goal setting techniques are examined and will be used to develop short and long term education, career and life plans. Materials fee required. *CSU/UC*

Counseling 118**Self Exploration and the Teaching Profession**

Unit(s): 2.0

Class Hours: 32 Lecture total.

An exploration of 'self' through a reflective process that focuses on values, interests, skills and personality as applied to the teaching profession and alternate professional choices. Topics include personal effectiveness, increasing cultural sensitivity, psychological and sociological forces within the workplace, career ladders and options, and academic preparation required for employment. Decision making models and goal setting techniques are examined and will be used to develop short and long term education, career and life plans. Materials fee required. *CSU*

Counseling 150**Introduction to Human Services**

Unit(s): 3.0

Class Hours: 48 Lecture total.

The history and philosophy of human services including theoretical frameworks, the function and orientation of human services organizations and the roles and qualifications of human services workers. A study of the target populations served by the human services and the professional, ethical and cultural issues facing the human services field. *CSU*

CRIMINAL JUSTICE (CJ)

Division of Business and Career Technical Education

Dean: Von Lawson

Courses**Criminal Justice 101****Introduction to Criminal Justice**

Unit(s): 3.0

Class Hours: 48 Lecture total.

A survey of the philosophy and history of the criminal justice system (law enforcement, courts, corrections); processes of justice from detection of crime to parole; evaluation of modern criminal justice delivery systems. *CSU/UC*

DANCE (DNCE)

Division of Arts, Humanities and Social Sciences

Dean: Marilyn Flores

Department Chair, Performing Arts: Binh Vu

Courses**Dance 100****Dance History and Appreciation**

Unit(s): 3.0

Class Hours: 48 Lecture total.

The development of dance in Western Europe and the U.S. from ancient times to the present. Explores dance as an emerging art form from the Renaissance to the 21st century. Emphasizes the contemporary dance heritage of the United States. *CSU/UC*

Dance 106A**Introduction to Modern Dance**

Unit(s): 1.0

Class Hours: 8 Lecture total, 24 Laboratory total.

An introduction to modern dance emphasizing movement technique, dance vocabulary and creative individual expression. Includes an introduction to choreographic principles and the historical/cultural context of American modern dance. For the student with little or no dance experience. A combination of Dance 106A and 106B may be taken a maximum of four enrollments. *CSU/UC*

Dance 106B**Introduction to Modern Dance**

Unit(s): 1.0

Class Hours: 8 Lecture total, 24 Laboratory total.

This course further explores the technical and expressive elements of modern dance. Students will practice floor exercises, axial/positional movements and locomotor patterns at an intermediate level. Deepening an understanding of historical significance, dance vocabulary and creative individual expression. Strengthening an understanding of choreographic principles and cultural context of American modern dance. A combination of Dance 106A and 106B may be taken a maximum of four enrollments. *CSU/UC*

Dance 108A**Introduction to Ballet**

Unit(s): 1.0

Class Hours: 8 Lecture total, 24 Laboratory total.

Introduction to basic ballet emphasizing movement technique, dance vocabulary, and creative individual expression. Student learns basic ballet barre exercises, center work, and short dance works. Includes an introduction to choreographic principles and cultural context of ballet. For the student with little or no dance experience. A combination of Dance 108A and 108B may be taken a maximum of four enrollments. *CSU/UC*

Dance 108B**Introduction to Ballet**

Unit(s): 1.0

Class Hours: 8 Lecture total, 24 Laboratory total.

This course further explores the technical and expressive elements of ballet technique, dance vocabulary, and creative individual expression. Students will practice ballet barre exercises, center work, and short dance works at an intermediate level. Strengthening an understanding of historical significance, choreographic principles and cultural context of ballet. A combination of Dance 108A and 108B may be taken a maximum of four enrollments. *CSU/UC*



Dance 115A

Introduction to Tap Dance

Unit(s): 1.0

Class Hours: 8 Lecture total, 24 Laboratory total.

Introduction to basic tap dance technique. Focuses on the mastery of basic tap steps and simple dance combinations. Recommended for theatre and dance majors. For the student with little or no dance experience. A combination of Dance 115A and 115B may be taken a maximum of four enrollments. *CSU/UC*

Dance 115B

Introduction to Tap Dance

Unit(s): 1.0

Class Hours: 8 Lecture total, 24 Laboratory total.

Recommended Preparation: Dance 115A.

This course further explores the technical and expressive elements of tap dance. Students will practice skills necessary for execution of traditional tap dance steps and sequences at an intermediate level. Strengthening intermediate steps leading to combination work in complete dances. A combination of Dance 115A and 115B may be taken a maximum of four enrollments. *CSU/UC*

Dance 119A

Introduction to Jazz Dance

Unit(s): 1.0

Class Hours: 8 Lecture total, 24 Laboratory total.

Introduction to jazz dance technique emphasizing elementary movement technique, vocabulary and creative expression. Includes an introduction to composition and cultural context of jazz. For students with little or no dance experience. A combination of Dance 119A and 119B may be taken a maximum of four enrollments. *CSU/UC*

Dance 119B

Introduction to Jazz Dance

Unit(s): 1.0

Class Hours: 8 Lecture total, 24 Laboratory total.

This course further explores the technical and expressive elements of jazz dance. Students will practice body alignment, locomotor movements, hitch kicks and leaps. Deepening an understanding of jazz dance, movement technique, vocabulary and creative expression. Strengthening an understanding of composition and cultural context of traditional and contemporary jazz dance forms. A combination of Dance 119A and 119B may be taken a maximum of four enrollments. *CSU/UC*

EARTH SCIENCES (ERTH)

Division of Mathematics and Sciences

Dean: Martin Stringer

Department Chair, Earth Sciences: Debra Brooks

Faculty: Debra Brooks, Eric Hovanitz

Associate of Science

Earth Sciences (11934)

The Associate of Science in Earth Sciences degree is designed to provide students who need or want broad knowledge of the Earth sciences for their profession, but do not necessarily plan on becoming professional geoscientists. In addition to the geosciences, professions where such knowledge could prove to be useful include environmental sciences, urban planning and land use, transportation, travel and tourism, education, park rangers and other recreation professionals.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Demonstrate an understanding of geoscience processes based upon observation of Earth materials and features.
- Demonstrate an understanding of the basic principles of the geosciences.

Major requirements*

	Units
Earth Sciences 100, Physical Geology	3
Earth Sciences 100L, Physical Geology Laboratory	1
Earth Sciences 111, Historical Geology	4
Earth Sciences 130, Environmental Geology	
OR	
Earth Sciences 160, Oceanography	3
OR	
Geography 130, Introduction to Weather and Climate	
Select a minimum of six (6) units from the following:	6-7
An additional course from above (3)	
(may not be a course used to satisfy the requirements in above list)	
Astronomy 109, Introduction to the Solar System (3)	
Biology 200, Environment of Man (3)	
Earth Sciences 120, Earth Sciences (3)	
OR	
Earth Sciences 121, Earth Sciences for Educators (4)	
Geography 150, Map Interpretation and Analysis (3)	
Geography 155, Introduction to Geographic Information Systems (3)	
OR	
Survey/Mapping Sciences 155, Introduction to Geographic Information Systems (3)	
Library & Information Studies 100, Library Research Fundamentals (1)	
Library & Information Studies 103, Advanced Internet Research (1)	
Select a minimum of one (1) unit from the following:	1-3
Earth Sciences 200, Geology of California (3)	
Earth Sciences 212, San Andreas Fault System Geology Field Study (1)	
Earth Sciences 214, Orange County Geology Field Study (1)	
TOTAL	18-21

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Associate in Science Geology for Transfer (32044)

The Associate in Science in Geology for Transfer degree prepares students for transfer to a four-year college or university to complete a baccalaureate degree in a geoscience major. Geoscientists find employment with environmental companies that clean up and monitor pollution problems. Geotechnical companies also employ geoscientists to evaluate risk from earthquakes, landslides, and other geological hazards. Oil and mining companies employ geoscientists to find new resources. The federal, state, county, and city governments also employ geoscientists for many of the same functions, as well as for geoscience research, and to monitor compliance with environmental regulations. Universities, colleges, and museums offer opportunities for teaching and/or research.

Successful completion of the Associate in Science in Geology for Transfer guarantees the student acceptance to the California State University system to pursue a baccalaureate degree in geology or a related field. While it does not guarantee the student acceptance to the University of California system, it does provide the major preparation needed by geology students transferring to a University of California campus in geology or related fields.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Demonstrate an understanding of geological processes based upon observation of Earth materials and features.
- Demonstrate an understanding of the basic principles of geology.

Major requirements*	Units
Earth Sciences 100, Physical Geology	3
Earth Sciences 100L, Physical Geology Laboratory	1
Earth Sciences 111, Historical Geology	4
Chemistry 219/219H, General Chemistry	5
Chemistry 229, General Chemistry and Qualitative Analysis	5
Mathematics 180/180H, Single Variable Calculus I	4
Mathematics 185, Single Variable Calculus II	4
TOTAL	26

Students are encouraged to take additional articulated major preparation courses prior to transfer such as, Physics 250A and 250B and Biology 211. While these additional courses are not required for this degree, completion of these courses will better prepare students for upper-division Geology courses at a CSU or a UC. It is highly recommended that students meet with an SCC counselor to discuss possible courses for major preparation for either the CSU system or the UC system, because CSU campuses do not all have identical requirements, and CSU requirements are also not identical to UC requirements.

Courses

Earth Sciences 100 Physical Geology (Formerly: Geology 101, Introduction to Geology)

Unit(s): 3.0

Class Hours: 48 Lecture total.

Recommended Preparation: Concurrent enrollment in Earth Sciences 100L.

Introduction to physical geology with an emphasis on the processes that change and shape Earth both internally and externally. Appropriate for students in any major. Field trips may be required. **CSU/UC (C-ID)**

Earth Sciences 100L Physical Geology Laboratory (Formerly: Geology 101L, Introduction to Geology Laboratory)

Unit(s): 1.0

Class Hours: 48 Laboratory total.

Prerequisite: Earth Sciences 100 or concurrent enrollment.

Identification of common minerals and rocks, topographic and geologic map exercises demonstrating the work of water, wind, ice, gravity, and effects of tectonic activity. Content correlates to Earth Sciences 100 lecture material. Field trips may be required. **CSU/UC (C-ID)**

Earth Sciences 111 Historical Geology (Formerly: Geology 201, Introduction to Historical Geology)

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Introduction to historical geology, investigating the history of Earth as preserved in the rock record with an emphasis on North America. Appropriate for students in any major. Field trips may be required. **CSU/UC (C-ID)**

Earth Sciences 120 Earth Sciences (Formerly: Earth Science 110, Introduction to Earth Science)

Unit(s): 3.0

Class Hours: 48 Lecture total.

Investigating the processes that shape and form Earth and define its place in the solar system through the sciences of geology, oceanography, meteorology and astronomy. Appropriate for students in any major. Field trips may be required. Not open to students who are enrolled in or have credit in Earth Sciences 121. **CSU/UC (C-ID)**

Earth Sciences 121 Earth Sciences for Educators (Formerly: Earth Science 115, Earth Science for Educators)

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Investigating the processes that shape and form Earth and define its place in the solar system through the sciences of geology, oceanography, meteorology and astronomy. This course is appropriate for students in any major, but oriented towards enhancing the Earth sciences knowledge of future teachers. Field trips may be required. Not open to students who are enrolled in or have credit in Earth Sciences 120. **CSU/UC**

Earth Sciences 130 Environmental Geology

Unit(s): 3.0

Class Hours: 48 Lecture total.

Introductory geology course emphasizing the fundamentals of environmental geology and the Earth system, including the interaction between, and impacts of, humans with the geological environment. Also emphasized are the interconnections among the geosphere, hydrosphere, atmosphere, and biosphere. Appropriate for students in any major. Field trips may be required. **CSU (C-ID)**

Earth Sciences 160 Oceanography (Formerly: Geology 150, Introduction to Oceanography)

Unit(s): 3.0

Class Hours: 48 Lecture total.

Introduction to oceanography and the processes that form, shape and change Earth's oceans. Appropriate for students in any major. Field trips may be required. **CSU/UC**



**Earth Sciences 200
Geology of California**

Unit(s): 3.0
Class Hours: 48 Lecture total.
Recommended Preparation: Earth Sciences 100, 120, 121 or Geography 101.

Introduction to the geology of California emphasizing tectonic processes, geologic structures, physiographic provinces, landforms, natural resources, geologic history, rocks and minerals, and the natural hazards of our state. Appropriate for students in any major. Field trips may be required. *CSU (C-ID)*

**Earth Sciences 212
San Andreas Fault System Geology Field Study
(Formerly: Geology 180, Geologic Field Studies of the San Andreas Fault)**

Unit(s): 1.0
Class Hours: 16 Lecture total.
Introductory exploration of the geology and tectonic history of the San Andreas Fault in California. Appropriate for students in any major. Mandatory orientation along with two, one-day field trips. *CSU*

**Earth Sciences 214
Orange County Geology Field Study
(Formerly: Geology 178, Geologic Field Studies of Orange County)**

Unit(s): 1.0
Class Hours: 16 Lecture total.
Introductory exploration of the geology of Orange County, California. Included are its geologic history such as mountain building, volcanic activity, faulting, coastal processes, stratigraphy and mineral resources. Appropriate for students in any major. Mandatory orientation along with two, one-day field trips. *CSU*

ECONOMICS (ECON)

Division of Arts, Humanities and Social Sciences

Dean: Marilyn Flores
Department Co-Chairs, Economics: Vanessa Engstrom, Alexander Taber
Faculty: Alexander Taber

**Associate in Arts
Economics for Transfer (32968)**

The Associate in Arts in Economics for Transfer degree provides students with a program of basic courses which enables students to experience a seamless transition into a curriculum at a four-year institution leading to a baccalaureate degree with career opportunities in economic research, consulting, accounting, and marketing in the areas of business, teaching, and public policy. Economics is the social science that studies how individuals, businesses, and governments make choices to cope with scarcity and the incentives that influence and reconcile those choices.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Identify and explain the fundamental economic problem of allocating scarce resources and the role of positive economics in explaining choices.
- Communicate using basic economic terminology, interpret relevant economic data, and follow and construct fundamental economic arguments.

Major requirements*	Units
Economics 101, Principles/Micro	3
Economics 102, Principles/Macro	3
Mathematics 219/219H, Statistics and Probability	4
OR	
Social Science 219/219H, Statistics and Probability	4
Mathematics 150, Calculus for Biological, Management and Social Sciences	
OR	
Mathematics 180/180H, Single Variable Calculus I	4
Select one (1) course from the following (List A):	
Accounting 101, Financial Accounting (4) Mathematics 185, Single Variable Calculus II (4)	
Select one (1) course from the following (List B):	3-5
An additional course from List A (may not be a course used to satisfy the requirements in List A)	
Accounting 102, Managerial Accounting (4)	
Business 150, Introduction to Information Systems and Applications (3)	
Business 222, Business Writing (3)	
Mathematics 280, Intermediate Calculus (4)	
Mathematics 287, Introduction to Linear Algebra and Differential Equations (5)	
Mathematics 290, Linear Algebra (3)	
TOTAL	21-23

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Associate of Arts Economics (11943)

The Associate of Arts degree in Economics is a program of basic courses which enable students to move into a curriculum in a four-year institution leading to a baccalaureate degree. Economics prepares the student for a number of career opportunities such as accounting and marketing in the areas of business, government and teaching.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Describe the economic approach to analyzing and explaining human behavior, communicate using basic economic terminology, interpret relevant economic data, and follow and construct fundamental economic arguments using verbal, graphical, and basic mathematical tools.
- Apply analytical reasoning and problem solving skills to formulate predictions and deduce cause-and-effect relationships in hypothetical scenarios and actual real world situations.
- Identify study skills, methods, and strategies that are effective for the student's learning style and likely to be effective for the student in further study of economics and other fields.

Major requirements*	Units
Economics 101, Principles/Micro	3
Economics 102, Principles/Macro	3
Accounting 101, Financial Accounting	4
Accounting 102, Managerial Accounting	4
Business 150, Introduction to Information Systems and Applications (3)	
OR	3-4
Mathematics 150, Calculus for Biological, Management and Social Sciences (4)	
Mathematics 219/219H, Statistics and Probability	
OR	4
Social Science 219/219H, Statistics and Probability	
TOTAL	21-22

Mathematics course chosen should be determined by the requirements of the intended upper division school of the student's choice.

Courses

Economics 101 Principles/Micro

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: Mathematics 080.

Introduction to microeconomics, including basic economic concepts, analysis of markets, efficiency, consumer and firm behavior, industry structures, market failure, and resource markets. For economics, business, and certain engineering and computer science majors. **CSU/UC (C-ID)**

Economics 102 Principles/Macro

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: Mathematics 080.

Introduction to macroeconomics, including basic economic concepts, analysis of markets, national income accounting, employment, short run business cycle fluctuations, long run growth trends, monetary and fiscal policies, and international economic issues. Intended for economics, business, and certain engineering/computer science majors. **CSU/UC (C-ID)**

EDUCATION (EDUC)

Division of Counseling and Student Support Services

Interim Dean: Jennifer Coto

Department Chair, Education: Janis Perry

Education/Teaching

Students planning to teach in the elementary and secondary schools may begin preparation at Santiago Canyon College. The college offers programs of study which fulfill lower-division requirements for most university teacher credential programs.

Suggested Elementary Teaching Emphasis

Liberal Studies and Child Development are the two most common university majors of students who are planning to enter teacher preparation programs for an elementary teaching credential. However, any transfer major leading to a bachelor's degree will fulfill admission requirements for teacher credential programs. Students should work with an SCC Counselor to assist them in choosing general education courses that will support their subject matter competency. Some universities offer students the option of obtaining a bachelor's degree and a credential simultaneously. These types of programs are called "integrated" teaching programs and are best for students who have decided early to pursue a teaching credential. Planning for this type of program involves specific courses for the major and general education. Students are advised to work with an SCC counselor to plan this course of study.

Santiago Canyon College offers an elementary education degree, shown below, that has been designed to assist students in meeting the course requirements for most transfer elementary teaching programs and prepares them for California subject matter requirements. Santiago Canyon College also offers two courses, Counseling 118, Self-Exploration and the Teaching Profession and Education 110, The Teaching Experience: Exploration that have been developed to assist students in making career decisions related to teaching, inform students about the process of entering the profession and/or to investigate alternate career choices.

Associate in Arts

Elementary Teacher Education for Transfer (31735)

The Associate in Arts in Elementary Teacher Education for Transfer degree is designed to prepare students for transfer to a California State University traditional or integrated teacher preparation program, most commonly found in the Liberal Studies major. It incorporates the elementary subject matter competence requirements as established by the California Teacher Credentialing Commission. The AA-T degree program requirements and the recommended electives prepare students in content areas for the California Subject Examinations for Teachers (CSET) of Multiple Subjects. Additionally, the degree curriculum may also serve as preparation for paraprofessional positions in the K-12 classroom, meeting unit requirements for paraprofessionals as established by the No Child Left Behind Act.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Identify elements of diversity and diverse learning styles in student populations and discover how teachers and schools can promote learning for all students.
- Demonstrate proficiency in 14 content areas required for subject matter competency for elementary teachers.



Major Requirements*	Units
Education 200, Introduction to Elementary Classroom Teaching	3
Biology 109/109H, Fundamentals of Biology and	3
Biology 109L, Fundamentals of Biology Laboratory	1
Communication 110, Public Speaking	3
English 101/101H, Freshman Composition	4
English 102/102H, Literature and Composition	4
Earth Sciences 121, Earth Sciences for Educators	4
Geography 100/100H, World Regional Geography	3
History 101/101H, World Civilizations to the 16th Century	3
History 120/120H, The United States to 1877	3
Child Development 107, Child Growth and Development (DS1)	3
Mathematics 203, Fundamental Concepts of Elementary Mathematics	4
Political Science 101/101H, Introduction to American Government	3
Physical Science 100, Survey of Chemistry and Physics	4
Select one (1) course from the following (List A):	4
English 103/103H, Critical Thinking and Writing (4)	
Philosophy 110/110H, Critical Thinking (4)	
Select one (1) course from the following (List B):	3
Art 100/100H, Introduction to Art Concepts (3)	
Dance 100, Dance History and Appreciation (3)	
Music 101/101H, Music Appreciation (3)	
Theatre Arts 100, Introduction to Theatre (3)	
Up to eight (8) units from the following (List C):	8
Education 101, American Schools and Society (3)	
Education 204, Proficiency in Educational Technologies for Secondary Teachers (3)	
Anthropology 104, Language and Culture (3)	
English 231, Survey of English Literature I (3)	
English 232, Survey of English Literature II (3)	
English 241, Survey of American Literature, 1600-1865 (3)	
English 242, Survey of American Literature, 1865-Present (3)	
English 270, Children's Literature (3)	
English 271, Survey of World Literature I (3)	
English 272, Survey of World Literature II (3)	
Ethnic Studies 101, Introduction to Ethnic Studies (3)	
French 102, Elementary French II (5)	
History 133, History of California (3)	
Mathematics 105, Mathematics for Liberal Arts Students (3)	
Mathematics 219/219H, Statistics and Probability (4)	
OR	
Social Science 219/219H, Statistics and Probability (4)	
Philosophy 106/106H, Introduction to Philosophy (3)	
Philosophy 108, Ethics (3)	
Philosophy 112, World Religions (3)	
Spanish 102/102H, Elementary Spanish II (5)	
TOTAL	60

California State University campuses have preferences on which List C courses should be chosen.

California State University Fullerton prefers one of the following: Anthropology 104 or English 270 or English 231, 232, 241, or 242
 California State University Long Beach prefers these courses: Ethnic Studies 101, Education 204, and Philosophy 106 or 108 or 112.

At SCC Mathematics 105 is a prerequisite to Mathematics 203 and may reduce the number of elective units in List C to 5 units.

**Associate of Arts
 Elementary Education (17759)**

The Associate of Arts degree in Elementary Education is designed to prepare students for transfer to a four-year university traditional or integrated elementary teacher education program. It incorporates elementary teaching subject matter requirements for preparation in subject matter competency as established by the California Teacher Credentialing Commission. The degree program requirements, and the general education recommended electives below, prepare students in content areas for the California Subject Examinations for Teachers (CSET) of Multiple Subjects. Additionally, the degree curriculum may also serve as preparation for paraprofessional positions in the K-12 classroom meeting unit requirements for paraprofessionals as established by the No Child Left Behind Act.

Learning Outcome(s)

- Upon successful completion of the major requirements for this degree, students will be able to
- Identify elements of diversity and diverse learning styles in student populations and discover how teachers and schools can promote learning for all students.
 - Demonstrate proficiency in academic content areas required for subject matter competency for elementary teachers.

Major requirements*	Units
Counseling 118, Self-Exploration and the Teaching Profession (2)	
OR	2-3
Education 110 The Teaching Experience: Exploration (3)	
Education 101, American Schools and Society	3
Education 200, Introduction to Elementary Classroom Teaching	3
Biology 115, Concepts in Biology for Educators	4
English 270, Children's Literature	3
Child Development 107, Child Growth and Development (DS1)	3
Earth Sciences 121, Earth Sciences for Educators	
OR	4
Physical Science 100, Survey of Chemistry and Physics	
Mathematics 105 Mathematics for Liberal Arts Students (3)	
OR	3-4
Mathematics 203, Fundamental Concepts of Elementary Mathematics (4)	
TOTAL	25-27

For those students following transfer patterns for elementary education programs the following general education electives are recommended to meet content area knowledge for the CSET. They may also be used to meet certain categories of the general education requirements for students not transferring and completing Plan A for the associate's degree: Communication 110, English 103, Mathematics 105, History 101, History 120, Political Science 101, Geography 100, History 133, Anthropology 104; and Art 100, Music 100 and 101 or Theatre 100; and English 231, 232, 241, 242, 271 or 272.

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Suggested Secondary Teaching Emphasis

Teaching at the secondary level (high school and middle school) requires a single subject credential. Students major in the subject they plan to teach and pass a subject matter competency exam or complete a state approved list of courses in the discipline. Students are advised to work with an SCC counselor to plan this course of study. Education 204 and Education 210, offered at SCC, are recommended prerequisites for secondary credential programs.

Certificate of Proficiency After School Program Assistant

The Certificate of Proficiency in After School Program Assistant is intended to prepare a student for an entry-level position requiring practical skills and knowledge to work with children in an after-school care, tutoring, or mentoring program. Completion of this certificate leads to state certification for a School Age Assistant Permit.

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Demonstrate knowledge of the practical skills and requirements to work at an entry-level with children, assisting a teacher, in an after-school care, tutoring, or mentoring program.

Certificate requirements	Units
Counseling 118, Self Exploration and the Teaching Profession (2) OR	2-3
Education 110, The Teaching Experience: Exploration (3)	
Education 113, Tutoring Reading in Elementary Schools	1
Child Development 120A, Development of the School-Age Child (DS5)	3
Child Development 120B, School-Age Child Care and Recreation Activities	3
Successful completion of courses listed below or test score indicating higher course placement:	
English 061, Introduction to Composition	0-3
Mathematics N60, Elementary Algebra	0-4
TOTAL	9-17

Certificate of Proficiency After School Program Associate Teacher

The Certificate of Proficiency in After School Program Associate Teacher is intended to provide students with advanced skills necessary to work with K-12 students in an after-school setting, provide tutoring/homework assistance, and assist in academic enrichment programs. In combination with the completion of the SCC After School Program Assistant Certificate, this certificate of completion leads to state certification for the School Age Associate Teacher Permit.

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Demonstrate the advanced skills necessary to work with students in an after school program setting that includes knowledge of academic support/enrichment and activity programming.

Certificate requirements	Units
Communication 110, Public Speaking	3
Counseling 118, Self Exploration and the Teaching Profession (2) OR	2-3
Education 110, The Teaching Experience: Exploration (3)	
Education 113, Tutoring Reading in Elementary Schools	1
Child Development 107, Child Growth and Development (DS1) OR	3
Psychology 157, Introduction to Child Psychology	
Child Development 110, Child, Family and Community (DS2)	3

Child Development 120B, School-Age Child Care and Recreation Activities	3
TOTAL	15-16

Certificate of Proficiency Special Education Paraprofessional

The Certificate of Proficiency in Special Education Paraprofessional will prepare the student for an entry-level position requiring practical skills and knowledge to work with persons with disabilities in a variety of educational settings. This certificate program also supports the requirements of federal legislation that all paraprofessionals/instructional assistants/aides in Title I schools be "highly qualified". In addition, the courses introduce the student to career opportunities in special education or other disability related fields and/or provide major preparation for transfer to four-year institutions to continue a course of study in special education.

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Demonstrate analysis and knowledge of the personal and team roles and responsibilities of the Special Education Paraprofessional in the public school which includes diagnosis and implementation strategies for students with special needs.

Certificate requirements	Units
Counseling 118, Self Exploration and the Teaching Profession	2
Education 209, Roles and Responsibilities of the Special Education Paraprofessional	3
Education 211, Classroom Practices for Diverse Learners	3
Child Development 107, Child Growth and Development (DS1) OR	3
Psychology 157, Introduction to Child Psychology	
Child Development 205, Introduction to Children with Special Needs	3
Child Development 206, Curriculum and Strategies for Children with Special Needs	3
TOTAL	17

Students planning to transfer to CSU Fullerton's Human Services major—Person's with Disabilities Track will receive up to 17 units of credit toward the major if they have satisfactorily completed the requirements for this certificate.

Courses

Education 101 American Schools and Society

Unit(s): 3.0

Class Hours: 48 Lecture total.

Recommended Preparation: English 101/101H.

Introduction to the historical, sociological and psychological goals of American schools as a social/political institution. Topics include equality of educational opportunity; student diversity and multicultural education; economic, societal and political influences; teacher roles and responsibilities; curriculum standards; and the globalization of education. **CSU/UC**

Education 110 The Teaching Experience: Exploration

Unit(s): 3.0

Class Hours: 48 Lecture total.

An exploration of the teaching profession both from academic understanding and from experience gained through 20 hours of classroom observations, assisting in schools and educational centers and designing, preparing and teaching standards based lessons in grades K-12. Topics will include instructional techniques and skills for the teaching profession, exploration of diversity and student learning and roles and responsibilities of teachers. Career and life plans for the teaching profession will be developed. **CSU**



Education 113

Tutoring Reading in Elementary Schools

Unit(s): 1.0

Class Hours: 16 Lecture total.

An examination of effective tutoring strategies with a focus on the reading skills of elementary age children. Students are placed in local K-8 classrooms, tutoring centers, and/or after school programs to gain experience tutoring and working with school-age children. **CSU**

Education 200

Introduction to Elementary Classroom Teaching

Unit(s): 3.0

Class Hours: 48 Lecture total.

Recommended Preparation: English 101/101H and Education 101.

Introduction to educational theory and practice, assessing issues and standards for teaching in California's culturally and linguistically diverse K -12 school settings; explores instructional methods for teaching, historical and philosophical foundations of the American education system, contemporary educational issues, California's curriculum standards and teacher performance standards. Students participate in 45 hours of structured fieldwork in an elementary classroom in cooperation with a certificated classroom teacher. **CSU/UC (C-ID)**

Education 204

Proficiency in Educational Technologies for Secondary Teachers

Unit(s): 3.0

Class Hours: 48 Lecture total.

Development of proficiency in educational technologies to facilitate the teaching process. Training in computer hardware and software terminology; spreadsheets, word processing, publication, and presentation applications; internet search and retrieval; information literacy; electronic communication and awareness of legal and ethical issues. **CSU**

Education 209

Roles and Responsibilities of the Special Education Paraprofessional

Unit(s): 3.0

Class Hours: 48 Lecture total.

This course is designed to train persons who work as classroom paraprofessional/teaching assistants in the public schools. The course provides an overview of paraprofessional roles and responsibilities including legal, instruction, evaluation and behavioral issues. Supports current legislation for paraprofessionals. **CSU**

Education 210

The Teaching Experience: Secondary Education

Unit(s): 3.0

Class Hours: 48 Lecture total.

Introduction to the history, philosophy, and sociology of secondary education. This course will cover the California Teaching Performance Expectation and Assessment; needs of special populations, English learners, and struggling readers; content standards; and major curriculum reform documents. Students participate in 40 hours of structured observation and internship in a local secondary classroom. **CSU/UC**

Education 211

Classroom Practices for Diverse Learners

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prepares individuals to assist teachers in various settings to support diverse learners (individuals who have disabilities, are second language learners, are gifted, etc.). Topics will include lesson planning, adapting academics: reading, mathematics, science, art, job coaching, behavioral support, etc. **CSU**

ELECTRICIAN (ELCT)

Division of Business and Career Technical Education

Dean: Von Lawson

General Electrician

The Associate of Science degree and Certificate of Achievement in General Electrician provide instruction for those seeking a career as an electrician. This meets the state requirements as an electrician trainee program.

Associate of Science

General Electrician (18791)

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Recertify health and safety, first aid and legally mandated electrical training required to maintain journeyworker status.

Major requirements*

	Units
Electrician 041, General Electrician 1	3
Electrician 042, General Electrician 2	3
Electrician 043, General Electrician 3	3
Electrician 044, General Electrician 4	3
Electrician 045, General Electrician 5	3
Electrician 046, General Electrician 6	3
Electrician 047, General Electrician 7	3
Electrician 048, General Electrician 8	3
Electrician 049, General Electrician 9	3
Electrician 050, General Electrician 10	3
Electrician 051, Quality Safety Program and First Aid	1.5
TOTAL	31.5

Certificate of Achievement

General Electrician (18790)

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Recertify health and safety, first aid and legally mandated electrical training required to maintain journeyworker status.

Certificate requirements

	Units
Electrician 041, General Electrician 1	3
Electrician 042, General Electrician 2	3
Electrician 043, General Electrician 3	3
Electrician 044, General Electrician 4	3
Electrician 045, General Electrician 5	3
Electrician 046, General Electrician 6	3
Electrician 047, General Electrician 7	3
Electrician 048, General Electrician 8	3
Electrician 049, General Electrician 9	3
Electrician 050, General Electrician 10	3
Electrician 051, Quality Safety Program and First Aid	1.5
TOTAL	31.5

Courses

Electrician 041

General Electrician 1

Unit(s): 3.0

Class Hours: 35 Lecture total, 45 Laboratory total.

First semester of a five-year program for certified electrical trainees. Covers tools and fasteners, knot tying, math and materials, building materials and safety, and residential blueprints. Meets the requirement as a state-certified training course. Open Entry/Open Exit.

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.


Electrician 042
General Electrician 2

Unit(s): 3.0

Class Hours: 35 Lecture total, 45 Laboratory total.

Prerequisite: Electrician 041.

Second semester of a five-year program for certified electrical trainees. Covers DC theory, the National Electrical Code, safe work practices, series circuits, parallel circuits, combination circuits, principles of magnetism and electromagnetism. Meets the requirement as a state-certified training course. Open Entry/Open Exit.

Electrician 043
General Electrician 3

Unit(s): 3.0

Class Hours: 35 Lecture total, 45 Laboratory total.

Prerequisite: Electrician 042.

Third semester of a five year program for certified electrical trainees. Covers codeology, test instruments and sine waves, three-phase systems, residential and commercial blueprints, mechanical bending. Meets the requirement as a state-certified training course. Open Entry/Open Exit.

Electrician 044
General Electrician 4

Unit(s): 3.0

Class Hours: 35 Lecture total, 45 Laboratory total.

Prerequisite: Electrician 043.

Fourth semester of a five-year program for certified electrical trainees. Covers electrical theory, transformers, and National Electrical Code application. Meets the requirement as a state-certified training course. Open Entry/Open Exit.

Electrician 045
General Electrician 5

Unit(s): 3.0

Class Hours: 35 Lecture total, 45 Laboratory total.

Prerequisite: Electrician 044.

Fifth semester of a five-year program for certified electrical trainees. Covers the National Electrical Code, grounding, industrial blueprints, and earth testing. Meets the requirement as a state-certified training course. Open Entry/Open Exit.

Electrician 046
General Electrician 6

Unit(s): 3.0

Class Hours: 35 Lecture total, 45 Laboratory total.

Prerequisite: Electrician 045.

Sixth semester of a five-year program for certified electrical trainees. Covers advanced motor control and code as applied to motor protection. Meets the requirement as a state-certified training course. Open Entry/Open Exit.

Electrician 047
General Electrician 7

Unit(s): 3.0

Class Hours: 35 Lecture total, 45 Laboratory total.

Prerequisite: Electrician 046.

Seventh semester of a five-year program for certified electrical trainees. Covers electronics and programmable logic controllers. Meets the requirement as a state-certified training course. Open Entry/Open Exit.

Electrician 048
General Electrician 8

Unit(s): 3.0

Class Hours: 35 Lecture total, 45 Laboratory total.

Prerequisite: Electrician 047.

Eighth semester of a five-year program. Covers low voltage systems and lightning protection, fire alarm systems, and instrumentation. Meets the requirement as a state-certified training course. Open Entry/Open Exit.

Electrician 049
General Electrician 9

Unit(s): 3.0

Class Hours: 35 Lecture total, 45 Laboratory total.

Prerequisite: Electrician 048.

Ninth semester of a five-year program for certified electrical trainees. Covers jobsite management. Prepares for competency exams. Meets the requirement as a state-certified training course. Open Entry/Open Exit.

Electrician 050
General Electrician 10

Unit(s): 3.0

Class Hours: 35 Lecture total, 45 Laboratory total.

Prerequisite: Electrician 049.

Final semester of a five-year program. A cover to cover study of the National Electrical Codebook to prepare for the California State Electrical Examination. Meets the requirement as a state-certified training course. Open Entry/Open Exit.

Electrician 051
Quality Safety Program and First Aid

Unit(s): 1.5

Class Hours: 20 Lecture total, 10 Laboratory total.

OSHA workplace requirements, the identification and use of safe work practices, coping with accidents and emergency situations, and one person CPR for inside wireman apprentices. American Red Cross certificate available upon successful completion. Grade: Pass/No Pass. Open Entry/Open Exit.

Electrician 080
Electrical Safety and First Aid

Unit(s): 1.5

Class Hours: 26 Lecture total.

Meets the needs of electricians already working in the trade. Covers Occupational Safety and Health Administration (OSHA), Quality Safety Program (QSP) and Red Cross first aid and CPR training. Upon successful completion, students will earn American Red Cross First Aid CPR certification. Grade: Pass/No Pass. Open Entry/Open Exit.

Electrician 081
Codeology

Unit(s): 2.0

Class Hours: 32 Lecture total.

Meets the needs of electricians already working in the trade. Covers the National Electrical Code (NEC), definitions and interpretations, using the NEC for calculations, mandatory and fine print rules. Grade: Pass/No Pass. Open Entry/Open Exit.

Electrician 082
NEC Study Level 1

Unit(s): 2.0

Class Hours: 32 Lecture total.

Meets the needs of electricians already working in the trade. Offers a complete study of the National Electrical Code Book from Article 90 through Article 450. Grade: Pass/No Pass. Open Entry/Open Exit.

Electrician 083
Code Calculations

Unit(s): 2.0

Class Hours: 32 Lecture total.

Meets the needs of electricians already working in the trade. Takes the student through all the calculations an electrician may use when referencing the National Electrical Code. Grade: Pass/No Pass. Open Entry/Open Exit.



Electrician 084
Math Skills for the Electrician
 Unit(s): 2.0

Class Hours: 32 Lecture total.

Meets the needs of electricians already working in the trade. Covers fractions/decimals and basic algebra. Grade: Pass/No Pass. Open Entry/Open Exit.

ENGINEERING (ENGR)

Division of Mathematics and Sciences

Dean: Martin Stringer

Department Chair, Physics and Engineering: Cynthia Swift

Faculty: Craig Rutan

The engineering program offers a comprehensive set of courses designed to prepare students for transfer into one of many different engineering majors at a four year university. Students will be exposed to the many aspects of engineering including discovery, creation of new technologies, and service to society.

Courses

Engineering 210
Engineering Materials
 Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: Chemistry 219 and Physics 250A

Recommended Preparation: Chemistry 229.

Introduction to the properties and performance of engineering materials and the relationship of those properties to the internal structure of materials including metals, polymers, ceramics, composites, and semiconductors. *CSU/UC*

Engineering 220
Statics

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: Mathematics 185 and Physics 250A.

An introductory course on the analysis of forces acting on objects and structures in equilibrium. Topics include equilibrium of particles, forces and friction, and static equilibrium of rigid bodies. *CSU/UC*

Engineering 225
Dynamics

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: Engineering 220.

Fundamentals of kinematics and kinetics of particles and rigid bodies. Topics include Newton's laws of motion, kinematics of particles, planar and three dimensional motion of rigid bodies, conservation principles, and an introduction to vibrations. *CSU/UC*

Engineering 230
Network Analysis

Unit(s): 5.0

Class Hours: 64 Lecture total, 48 Laboratory total.

Prerequisite: Physics 250B.

Corequisite: Mathematics 287 or 295.

Recommended Preparation: Prior completion of Mathematics 287 or 295.

An introductory course on the modeling and analysis of electrical networks. Topics include basic network theorems, steady state analysis, Laplace and Fourier transforms. *CSU/UC*



ENGLISH (ENGL)

Division of Arts, Humanities and Social Sciences

Dean: Marilyn Flores

Department Chair, English: Elizabeth Elchlepp

Faculty: Rick Adams, Lynette Beers-McCormick, Lisa Dela Cusack, Elizabeth Elchlepp, Corinna Evett, Kathy Hall, Kathryn Kosuth-Wood, William Lennertz, Nidzara Pecenkovic, Maureen Roe, Roberta Tragarz

Associate in Arts

English for Transfer (31366)

The Associate in Arts in English for Transfer degree enables students to develop proficiency in written communication and in the understanding of human nature through the study of language and literature. Completion of the transfer degree in English prepares students to (1) communicate effectively, (2) exercise critical thinking and reasoning, (3) read and write to express creativity, and (4) explore the history of significant literary works. Successful completion of the transfer degree in English guarantees the student acceptance to the California State University system to pursue a baccalaureate degree in English or a related field.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Analyze and evaluate texts, written, visual, and oral, for structure, soundness, and creativity.
- Compose texts that focus on specific purposes for specific audiences and that demonstrate effective organization, development, grammatical precision, clarity, originality, and correct use of sources.

Major Requirements*

	Units
English 102/102H, Literature and Composition	4
English 103/103H, Critical Thinking and Writing	4

Select two (2) courses from the following (List A):

English 231, Survey of English Literature I (3)	6
English 232, Survey of English Literature II (3)	
English 241, Survey of American Literature, 1600-1865 (3)	
English 242, Survey of American Literature, 1865-Present (3)	
English 271, Survey of World Literature I (3)	
English 272, Survey of World Literature II (3)	

Select one (1) course from the following (List B):

An additional course from List A	3
(may not be a course used to satisfy the requirements of List A)	
English 211, Creative Writing I/Fiction (3)	
English 212, Creative Writing II/Fiction (3)	
English 214, Creative Writing I/Poetry (3)	
English 215, Creative Writing II/Poetry (3)	

Select one (1) course from the following (List C):

An additional course from List A or B	3
(may not be a course used to satisfy the requirements of List A or B)	
English 220, Survey of the Bible As Literature (3)	
English 233A, Shakespeare's Comedies and Romances (3)	
English 233B, Shakespeare's Tragedies and History Plays (3)	
English 246, Survey of Chicano Literature (3)	
English 270, Children's Literature (3)	
English 278, Survey of Literature by Women (3)	

TOTAL 20

Associate of Arts English (11928)

The Associate of Arts degree in English is designed to develop proficiency in written communication and in the understanding of human nature through the study of language and literature. Completion of the degree program prepares students to pursue a major in English leading to a baccalaureate degree.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Compose texts that focus on specific purposes for specific audiences and that demonstrate effective organization, development, grammatical precision, clarity, originality, and correct use of sources.
- Analyze and evaluate texts, written, visual, and oral, for structure, soundness, and creativity.

Major requirements*

	Units
English 101/101H, Freshman Composition	4
English 102/102H, Literature and Composition	4
English 103/103H, Critical Thinking and Writing	4

Select one (1) sequence from the following:

English 231, 232, Survey of English Literature (3, 3)	6
English 241, 242, Survey of American Literature (3, 3)	
English 271, 272, Survey of World Literature (3, 3)	

Select four (4) courses from the following:

No more than 3 units in either English 211, 212, 214, or 215 may be used for the required 12 units of electives.	12
English 211, Creative Writing I/Fiction (3)	
English 212, Creative Writing II/Fiction (3)	
English 214, Creative Writing I/Poetry (3)	
English 215, Creative Writing II/Poetry (3)	
English 220, Survey of the Bible As Literature (3)	
English 231, Survey of English Literature I (3)	
English 232, Survey of English Literature II (3)	
English 233A, Shakespeare's Comedies and Romances (3)	
English 233B, Shakespeare's Tragedies and History Plays (3)	
English 241, Survey of American Literature, 1600-1865 (3)	
English 242, Survey of American Literature, 1865-Present (3)	
English 246, Survey of Chicano Literature (3)	
English 270, Children's Literature (3)	
English 271, Survey of World Literature I (3)	
English 272, Survey of World Literature II (3)	
English 278, Survey of Literature by Women (3)	

TOTAL 30

Students planning to transfer to 4-year schools should consult with English departments at those institutions regarding specific lower-division requirements and unit limits.

Courses

English N50

Introduction to Written Communication

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: Qualifying profile from English placement process.

Introduction to written communication, including autobiographical, journal and summary writing as well as responding to essays. Basic grammar and punctuation. Designed for native speakers. Not applicable to associate degree.



English N60

Basics of Effective Writing

Unit(s): 4.0

Class Hours: 64 Lecture total, 16 Laboratory total.

Prerequisite: English N50 or qualifying profile from English placement process.

Sentence structure and paragraph writing including reading-based modeling and integrated study skills. Not applicable to associate degree. 16 additional hours in Writing Center required (one hour per week for 16-week semester sections).

English N70

English Foundations ALP

Unit(s): 2.0

Class Hours: 32 Lecture total.

Corequisite: English 101/101H.

This course is part of the Accelerated Learning Program and is intended for students who place into English 061 but choose to enroll in an accelerated course to progress through developmental English and English 101 in a single semester. Grade: Pass/No Pass.

English N90

English Writing Center I

Unit(s): 0.2

Class Hours: 5 Lecture total.

This course is designed to offer extended composition strategies for English students enrolled in English N50, N60, or 061. Grade: Pass/No Pass. Open Entry/Open Exit.

English N91

English Writing Center II

Unit(s): 0.2

Class Hours: 5 Lecture total.

This course offers extended composition strategies designed for English students enrolled in English 101, 102, or 103. Grade: Pass/No Pass. Open Entry/Open Exit.

English N92

Extended Composition Strategies

Unit(s): 0.2

Class Hours: 5 Lecture total.

This course offers extended composition strategies designed for students enrolled in and writing essays for classes other than English. Students will use the Writing Center to get assistance with planning, drafting, documenting, and revising the essays they are assigned in such courses as history, biology, sociology, political science, philosophy, and anthropology. Grade: Pass/No Pass. Open Entry/Open Exit.

English 061

Introduction to Composition

Unit(s): 3.0

Class Hours: 64 Lecture total, 16 Laboratory total.

Prerequisite: English N60 or qualifying profile from English placement process.

Expository paragraph writing emphasizing various methods including argumentation. Practice in refining sentence skills and grammar. 16 additional hours in Writing Center required (one hour per week for 16-week semester sections).

English 101

Freshman Composition

Unit(s): 4.0

Class Hours: 64 Lecture total.

Prerequisite: English 061, American College English 116 or qualifying profile from English placement process.

This course emphasizes expository and argumentative essays and the research paper. Special interest sections are described in the schedule of classes. *CSU/UC (C-ID)*

English 101H

Honors Freshman Composition

Unit(s): 4.0

Class Hours: 64 Lecture total.

Prerequisite: English 061, American College English 116 or qualifying profile from English placement process and a high school or college GPA of 3.0 or above.

This course provides an enriched exposure to expository and argumentative essays and the research paper, requiring in-depth analysis of issues and substantive treatment of student selected topics. *CSU/UC (C-ID)*

English 102

Literature and Composition

Unit(s): 4.0

Class Hours: 64 Lecture total.

Prerequisite: English 101/101H.

A second semester course in composition and literature that uses literature to develop critical thinking skills with extensive readings selected from the four major genres. *CSU/UC (C-ID)*

English 102H

Honors Literature and Composition

Unit(s): 4.0

Class Hours: 64 Lecture total.

Prerequisite: English 101/101H and a high school or college GPA of 3.0 or above.

An enriched approach designed for honors students. A second semester course in composition and literature that uses literature to develop critical thinking skills with extensive readings selected from the four major genres. *CSU/UC (C-ID)*

English 103

Critical Thinking and Writing

Unit(s): 4.0

Class Hours: 64 Lecture total.

Prerequisite: English 101/101H.

This course focuses on developing critical thinking, reading, and writing skills by studying established argumentative methods and models and applying them to contemporary issues. Emphasis will be on logical reasoning and analytical and argumentative skills necessary for critical writing. *CSU/UC (C-ID)*

English 103H

Honors Critical Thinking and Writing

Unit(s): 4.0

Class Hours: 64 Lecture total.

Prerequisite: English 101/101H and a high school or college GPA of 3.0 or above.

This course will emphasize an enriched and intensive exploration of historical and contemporary issues as well as encourage an application of critical thinking, writing and reading skills to established argumentative methods and models through student-initiated discussion and problem-solving in a seminar setting. *CSU/UC (C-ID)*

English 211

Creative Writing I/Fiction

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: English 101/101H.

This course provides an introduction to the reading and writing of fiction and to the workshop method of critiquing student writing. Focus will be placed on the fundamentals of fiction genres: short story, novel, and drama. *CSU/UC*



English 212
Creative Writing II/Fiction
 Unit(s): 3.0
 Class Hours: 48 Lecture total.
 Prerequisite: English 211.

This course offers a workshop environment for advanced and intensive practice in the craft of composing and critiquing fiction. Emphasis will be placed on developing advanced skills of analysis with a focus on complex works from three different genres: short story, novel, and drama. **CSU/UC**

English 213
Creative Writing
 Unit(s): 3.0
 Class Hours: 48 Lecture total.
 Prerequisite: English 101/101H.

This course offers an introduction to writing techniques focusing on the four literary genres: poetry, drama, short story, and novel. Class will be conducted in a workshop format with an emphasis on writing and critiquing. **CSU/UC (C-ID)**

English 214
Creative Writing I/Poetry
 Unit(s): 3.0
 Class Hours: 48 Lecture total.
 Prerequisite: English 101/101H.

This course provides an introduction to the reading and writing of poetry and to the workshop method of critiquing student writing. Focus will be placed on the fundamentals of poetic techniques, forms, and content. Basic strategies for submitting works for publication will also be addressed. **CSU/UC**

English 215
Creative Writing II/Poetry
 Unit(s): 3.0
 Class Hours: 48 Lecture total.
 Prerequisite: English 214.

This course offers a workshop environment for advanced and intensive practice in the craft and reading of poetry. Focus will be placed on the more advanced elements of poetic techniques, forms, and content, such as line scansion for rhyme, stress, and meter. A more detailed explanation of the publication process will also be addressed. **CSU/UC**

English 220
Survey of the Bible As Literature
 Unit(s): 3.0
 Class Hours: 48 Lecture total.
 Prerequisite: English 101/101H.

A study of the literary history, influence, and craftsmanship of the Bible and an exploration of related stories, poems, plays, essays and other diverse materials. **CSU/UC**

English 231
Survey of English Literature I
(Formerly: English 231, Survey of English Literature)
 Unit(s): 3.0
 Class Hours: 48 Lecture total.
 Prerequisite: English 101/101H.

Introductory study of representative selections of British literature from the Anglo-Saxon period to the neo-classical period. Emphasis on authors best exemplifying their period, such as Chaucer, Shakespeare, Spenser, Jonson, Milton, Donne, Dryden, Johnson, Behn, Pope, and others. **CSU/UC (C-ID)**

English 232
Survey of English Literature II
(Formerly: English 232, Survey of English Literature)
 Unit(s): 3.0
 Class Hours: 48 Lecture total.
 Prerequisite: English 101/101H.

Introductory study of representative selections from the English Romantic Movement to the present. Emphasis on those authors best exemplifying their period, such as Joyce, Austen, Wordsworth, Coleridge, Byron, the Shelleys, Keats, Tennyson, Newman, Carlyle, the Brownings, Dickens, the war poets, Houseman, Yeats, Wilde and Woolf. **CSU/UC (C-ID)**

English 233A
Shakespeare's Comedies and Romances
 Unit(s): 3.0
 Class Hours: 48 Lecture total.
 Prerequisite: English 101/101H.

Study of a select number of plays to discover how Shakespeare uses the genres of comedy and romance to explore the human condition as it relates to historical, philosophical, social, political, and aesthetic contexts. Augmented by films and, if available, appropriate field trips. Different selections in English 233A and 233B. **CSU/UC**

English 233B
Shakespeare's Tragedies and History Plays
 Unit(s): 3.0
 Class Hours: 48 Lecture total.
 Prerequisite: English 101/101H.

Study of a select number of plays to discover how Shakespeare uses tragedy and history plays to explore the human condition as it relates to historical, philosophical, social, political, and aesthetic contexts. Augmented by films and, if available, appropriate field trips. Different selections in English 233A and 233B. **CSU/UC**

English 241
Survey of American Literature, 1600-1865
 Unit(s): 3.0
 Class Hours: 48 Lecture total.
 Prerequisite: English 101/101H.

This course provides a survey of America's greatest works of literature from 1600-1865, emphasizing the relationship between various works and general movements in American culture and literary history. **CSU/UC (C-ID)**

English 242
Survey of American Literature, 1865-Present
 Unit(s): 3.0
 Class Hours: 48 Lecture total.
 Prerequisite: English 101/101H.

The course provides a survey of America's greatest works of literature and their contributions to the American culture from 1865 to present, emphasizing the relationship between literary and intellectual history. **CSU/UC (C-ID)**

English 246
Survey of Chicano Literature
 Unit(s): 3.0
 Class Hours: 48 Lecture total.
 Prerequisite: English 101/101H.

Examines American literature by and about Chicanos. Emphasizes the relationships between various works and the Chicanos' place in American society/culture. **CSU/UC**



**English 270
Children's Literature**

Unit(s): 3.0
Class Hours: 48 Lecture total.
Prerequisite: English 101/101H.

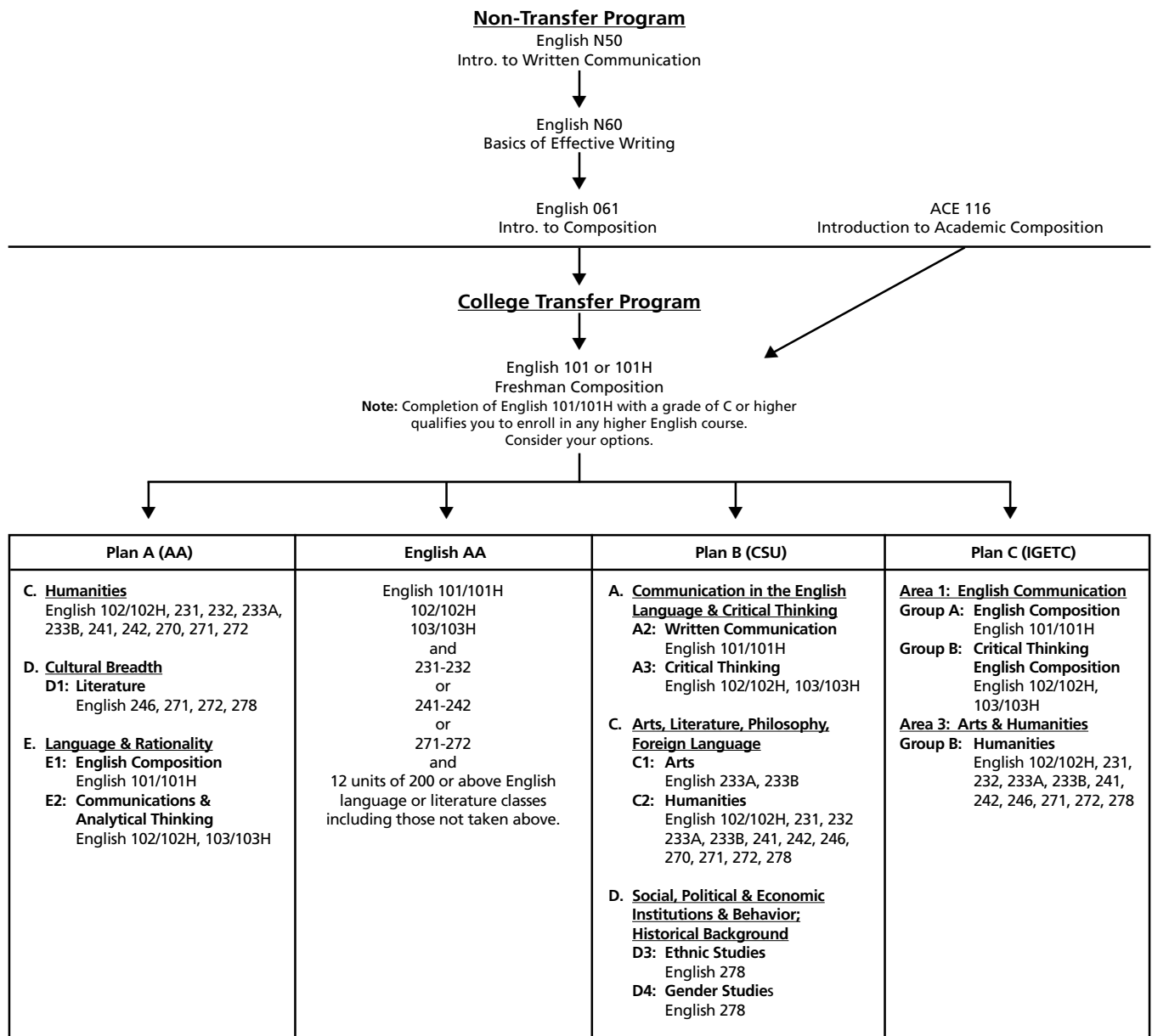
This course offers a study of literature for children, emphasizing the history, trends, issues, and evaluation of all major genres: picture books, poetry, drama, traditional literature, non-fiction, and fiction, including full-length works. **CSU (C-ID)**

**English 271
Survey of World Literature I
(Formerly: English 271, Survey of World Literature)**

Unit(s): 3.0
Class Hours: 48 Lecture total.
Prerequisite: English 101/101H.

Survey of selections from world masterpieces from the beginnings of writing through the 1600s. Literary works studied in historical context for artistic form, influence on their and others' cultures, and general contribution to understanding human experience. **CSU/UC (C-ID)**

ENGLISH PROGRAM AND SEQUENCE OF COURSES



*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



English 272
Survey of World Literature II
 (Formerly: English 272, Survey of World Literature)

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: English 101/101H.

Survey of world literary masterworks since the Renaissance studied for artistic form, cultural influence, and contributions to modern and contemporary thought. *CSU/UC (C-ID)*

English 278
Survey of Literature by Women

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: English 101/101H.

An historical survey of literature by women. Will include short stories, novels, plays, poetry, and non-fiction. *CSU/UC*

ETHNIC STUDIES (ETHN)

Division of Arts, Humanities and Social Sciences

Dean: Marilyn Flores

Department Chair, Ethnic Studies: Tiffany Gause

Courses

Ethnic Studies 101
Introduction to Ethnic Studies

Unit(s): 3.0

Class Hours: 48 Lecture total.

Historical and cultural survey of ethnic groups and relations in the U.S. among Euro-Americans, Native Americans, Asian Pacific Americans, African Americans, and Mexican Americans/Latinos from the pre-Columbian period to the present. *CSU/UC*



FRENCH (FREN)

Division of Arts, Humanities and Social Sciences

Dean: Marilyn Flores

Department Chair, Modern Languages: Elizabeth Baez

Courses

French 101

Elementary French 1

Unit(s): 5.0

Class Hours: 80 Lecture total, 16 Laboratory total.

A college-level French course focusing on fundamentals of pronunciation, grammar, basic vocabulary, idioms, and simple conversation and composition, including supplementary cultural readings. French 101 is equivalent to two years of high school French. *CSU/UC*

French 102

Elementary French II

Unit(s): 5.0

Class Hours: 80 Lecture total, 16 Laboratory total.

Prerequisite: French 101 or two years of high school French with a grade of C or better.

A college-level French course focusing on further training in pronunciation, more extensive vocabulary development, conversation, grammar, reading and composition. French 102 is equivalent to the third year of high school French. Sixteen additional hours in the Modern Language Lab required. *CSU/UC*

French 194

Conversation and Composition I

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: French 101 or two years high school French with grade of C or better.

Review and implementation of language structure through discussion, conversation, reading, and composition. Discussions of French culture and current events. *CSU*

French 196

Conversation and Composition II

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: French 102.

Further development of conversation and composition skills through cultural and current events and readings and discussions. Vocabulary development and idioms usage will be practiced in a cultural context through discussions and class presentations. *CSU/UC*

French 201

Intermediate French I

Unit(s): 5.0

Class Hours: 80 Lecture total.

Prerequisite: French 102 or three years of high school French with a grade of C or better.

A college-level French class focusing on expansive review of usage and grammar, discussion in French of interpretive reading material, and conversation and composition. *CSU/UC*

French 202

Intermediate French II

Unit(s): 5.0

Class Hours: 80 Lecture total.

Prerequisite: French 201 or four years of high school French with a grade of C or better.

A college-level French class focusing on a specialized review of grammar and composition; discussion in French of history and culture based on literary materials. *CSU/UC*

GEMOLOGY (GEM)

Division of Business and Career Technical Education

Dean: Von Lawson

Facilitator: Lothar Vallot

The Associate of Science degree and Certificate of Achievement in Gemology provide technical and practical theory and knowledge in diamonds and colored stones including laboratory grading, identification and evaluation of gems. Employment opportunities upon completion of this program: jewelry appraiser, diamond and colored stones sales, jewelry buyer, jewelry wholesaler and laboratory gemologist.

Associate of Science Gemology (11874)

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Demonstrate the theory and practice of gemology.
- Demonstrate knowledge of the business of gem stones.

Major requirements*

	Units
Gemology 011, Introductory Colored Stones	4
Gemology 012, Advanced Colored Stones	4
Gemology 020, Diamonds	4
Gemology 030, Antique and Period Jewelry	3
Gemology 050, Pearls	3
TOTAL	18

Certificate of Achievement Gemology (21644)

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Demonstrate the theory and practice of gemology.
- Demonstrate knowledge of the business of gem stones.

Certificate requirements

	Units
Gemology 011, Introductory Colored Stones	4
Gemology 012, Advanced Colored Stones	4
Gemology 020, Diamonds	4
Gemology 030, Antique and Period Jewelry	3
Gemology 050, Pearls	3
TOTAL	18

Courses

Gemology 011

Introductory Colored Stones

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Introduction to identification, appreciation, and evaluation of colored gemstones. Overview of the world colored-stone industry. Experience using gemological testing equipment and procedures to identify the most commonly seen varieties of natural and synthetic-fashioned gemstones.

Gemology 012

Advanced Colored Stones

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Advanced identification, appreciation and evaluation of colored gemstones. Overview of the world colored-stone industry. Further experience using gemological testing equipment to identify the most commonly seen varieties of both natural and synthetic-fashioned gemstones.

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Gemology 015
Colored Stones and Diamond Lab

Unit(s): 1.0

Class Hours: 48 Laboratory total.

Recommended Preparation: Previous or concurrent enrollment in another Gemology course.

Laboratory experience in testing and identification of colored gemstones and/or full grading of diamonds for clarity, color, cut and carat weight. Grade: Pass/No Pass.

Gemology 020
Diamonds

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Full range of diamond grading techniques, history, diamond substitutes, physical and optical properties, all types of synthetic, techniques of valuing/pricing, famous diamonds, detecting enhancements.

Gemology 030
Antique and Period Jewelry

Unit(s): 3.0

Class Hours: 48 Lecture total.

The history, techniques, styles and periods of antique and period jewelry. Identification of period pieces from Georgian to Retro, including authentic vs. reproductions. Includes types of metals and materials, stone cutting, setting techniques, and types of gemstones used.

Gemology 050
Pearls

Unit(s): 3.0

Class Hours: 48 Lecture total.

Introduction to the history, appreciation, and evaluation of natural and cultured pearls, including an overview of the world pearl industry. Pearl identification and grading techniques covering the physical and optical properties for judging the luster, surface, shape, color, and size of the various types.

GENERAL EDUCATION CERTIFICATES
CSU/IGETC

Division of Counseling and Student Support Services

Interim Dean: Jennifer Coto
Articulation Officer: Leonor Aguilera

California State University (CSU) General Education
Breadth Certificate of Achievement (18117)

Complete all CSU General Education Breadth Requirements (Plan B) to a minimum of 39 units as outlined on page 45.

Intersegmental General Education Transfer Curriculum
(IGETC) Certificate of Achievement (18118)

Complete all Intersegmental General Education Transfer Curriculum Requirements (Plan C) to a minimum of 37 units as outlined on page 47.



GEOGRAPHY (GEOG)

Division of Arts, Humanities and Social Sciences

Dean: Marilyn Flores

Department Co-Chairs, Geography: Vanessa Engstrom, Alexander Taber

Faculty: Vanessa Engstrom

Associate in Arts

Geography for Transfer (32364)

The Associate in Arts in Geography for Transfer degree provides students with an interdisciplinary background for entry into a curriculum at a four-year institution leading to a baccalaureate degree with career opportunities in a wide range of jobs in government, such as Bureau of Census, Central Intelligence Agency (CIA), Drug Enforcement Administration (DEA), United States Geological Survey (USGS), United States Citizenship and Immigration Services (USCIS), United States Immigration and Customs Enforcement (ICE), United States Department of State, and in private industry, such as planning market research, land use analysis, transportation, travel and tourism, and education.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- **Communication Skills:** Develop geographic literacy in both physical and cultural fields. Use specific geographic terminology. Interpret various geographic maps, graphs, and charts.
- **Critical Thinking:** Evaluate various meteorological and geomorphological data identifying cause and effect. Analyze how humans interpret and interact with their physical environment including global diversity in cultural and physical realms and the challenges this poses to the environment.

Major requirements*	Units
Geography 101, Physical Geography	3
Geography 101L, Physical Geography Laboratory	1
Geography 102, Cultural Geography	3
Select two (2) courses from the following (List A):	6
Geography 100/100H, World Regional Geography (3)	
Geography 130, Introduction to Weather and Climate (3)	
Geography 140, California Geography (3)	
Geography 150, Map Interpretation and Analysis (3)	
Geography 155, Introduction to Geographic Information Systems (3)	
OR	
Survey/Mapping Sciences 155, Introduction to Geographic Information Systems (3)	
Geography 160, Regional Field Studies (3)	
Select two (2) courses from the following (List B):	6
An additional course from List A (3)	
(may not be a course used to satisfy the requirements of List A)	
Earth Sciences 100, Physical Geology (3)	
Anthropology 100/100H, Introduction to Cultural Anthropology (3)	
TOTAL	19

Courses

Geography 100

World Regional Geography

Unit(s): 3.0

Class Hours: 48 Lecture total.

The study of major world political and natural regions. The location of the regions on earth, the physical and cultural elements that lend the regions with their identities, and ways in which these elements related to the regions' inhabitants and economies. *CSU/UC (C-ID)*

Geography 100H

Honors World Regional Geography

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: A high school or college GPA of 3.0 or above.

Enriched and intensive study, including seminar approach with individual written and oral presentations of major world political and natural regions. The location of the regions on earth, the physical and cultural elements which provide the regions with their identity, identities and ways in which these elements relate to the regions' inhabitants and economies. *CSU/UC (C-ID)*

Geography 101

Physical Geography

Unit(s): 3.0

Class Hours: 48 Lecture total.

Introduction to the physical elements of geography: maps, earth/sun relationships, meteorology and climatology, natural vegetation, soils, and geomorphology. *CSU/UC (C-ID)*

Geography 101L

Physical Geography Laboratory

Unit(s): 1.0

Class Hours: 48 Laboratory total.

Prerequisite: Geography 101 or concurrent enrollment.

Recommended Preparation: Mathematics N60.

Laboratory exercises and experiments designed to explore and understand the primary areas of physical geography. Exercises and applications related to map scales and projections, stereoscopic, topographic and aerial photo interpretation, meteorological tools and models and weather prognostication, geomorphologic models and processes, and landform interpretation. Field trips may be required. *CSU/UC (C-ID)*

Geography 102

Cultural Geography

Unit(s): 3.0

Class Hours: 48 Lecture total.

An introductory survey of the geography of culture, and the influences of the physical environment on culture, along with the impact of human activity on the environment, and the role of culture within societies and social groups. The course includes global patterns of population, migration, religion, language, agriculture, politics, customs, resources, and urban and rural settlement. *CSU/UC (C-ID)*

Geography 130

Introduction to Weather and Climate

Unit(s): 3.0

Class Hours: 48 Lecture total.

This course examines Earth's weather and climate patterns from a geographic perspective. Students explore the basic principles of weather and climate as well as causes and effects. Emphasis is placed on understanding various elements and controls of weather and climate as well as interpreting weather maps and charts. Techniques and principles involved in interpreting weather data, weather charts and maps and weather forecasting will also be introduced. *CSU/UC (C-ID)*

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Geography 140 California Geography

Unit(s): 3.0

Class Hours: 48 Lecture total.

Recommended Preparation: Geography 100/100H.

A thematic approach to California's geographical issues, processes and topics relevant to geography including climate, landforms, natural vegetation, water resources, cultural landscape, ethnic diversity, urban and agricultural regions, and the economy. This course explores the physical and human landscapes that have evolved as a result of the human-environment interface. **CSU/UC (C-ID)**

Geography 150 Map Interpretation and Analysis

Unit(s): 3.0

Class Hours: 48 Lecture total.

Recommended Preparation: Geography 101.

Introduction to maps, map concepts, and geographic technologies. An introduction to the principles and theory of map-making map concepts, and geographic technologies. The emphasis will be on the design of maps (both hard-copy and digital) for research and publication using advanced computer hardware and software. The course entails the creation of reproducible, thematic maps using the various computer techniques available to the cartographer. Field trips may be required. **CSU/UC (C-ID)**

Geography 155 Introduction to Geographic Information Systems

Unit(s): 3.0

Class Hours: 48 Lecture total.

Recommended Preparation: Familiarity with PC and Windows operating environment.

This course introduces basic scientific principles of Geographic Information Systems (GIS) as they relate to working with data that have important spatial orientation and organization. Geometric and geographic concepts and theories are used to develop scientific methods for proper communication of the data and the solution of problems that have spatial relationships. Course covers basic concepts in mapping and orientation, the development of map scales and comparison of different coordinate systems and data error analysis. (Same as Survey/Mapping Sciences 155.) **CSU/UC (C-ID)**

Geography 160 Regional Field Studies

Unit(s): 3.0

Class Hours: 48 Lecture total.

Extended field studies of the geography of selected regions. Emphasis upon field observation and interpretation of climate, meteorology, vegetation, soils, and landforms. Field trips are required. **CSU (C-ID)**

GEOLOGY (GEOL)

(see *Earth Sciences*)

Division of Mathematics and Sciences

Dean: Martin Stringer**Department Chair, Earth Sciences:** Debra Brooks**Faculty:** Debra Brooks, Eric Hovanitz

Associate in Science Geology for Transfer (32044)

The Associate in Science in Geology for Transfer degree prepares students for transfer to a four-year college or university to complete a baccalaureate degree in a geoscience major. Geoscientists find employment with environmental companies that clean up and monitor pollution problems. Geotechnical companies also employ geoscientists to evaluate risk from earthquakes, landslides, and other geological hazards. Oil and mining companies employ geoscientists to find new resources. The federal, state, county, and city governments also employ geoscientists for many of the same functions, as well as for geoscience research, and to monitor compliance with environmental regulations. Universities, colleges, and museums offer opportunities for teaching and/or research.

Successful completion of the Associate in Science in Geology for Transfer guarantees the student acceptance to the California State University system to pursue a baccalaureate degree in geology or a related field. While it does not guarantee the student acceptance to the University of California system, it does provide the major preparation needed by geology students transferring to a University of California campus in geology or related fields.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Demonstrate an understanding of geological processes based upon observation of Earth materials and features.
- Demonstrate an understanding of the basic principles of geology.

Major requirements*	Units
Earth Sciences 100, Physical Geology	3
Earth Sciences 100L, Physical Geology Laboratory	1
Earth Sciences 111, Historical Geology	4
Chemistry 219/219H, General Chemistry	5
Chemistry 229, General Chemistry and Qualitative Analysis	5
Mathematics 180/180H, Single Variable Calculus I	4
Mathematics 185, Single Variable Calculus II	4
TOTAL	26

Students are encouraged to take additional articulated major preparation courses prior to transfer such as, Physics 250A and 250B and Biology 211. While these additional courses are not required for this degree, completion of these courses will better prepare students for upper-division Geology courses at a CSU or a UC. It is highly recommended that students meet with an SCC counselor to discuss possible courses for major preparation for either the CSU system or the UC system, because CSU campuses do not all have identical requirements, and CSU requirements are also not identical to UC requirements.

Courses

(see *Earth Sciences*)

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



HISTORY (HIST)

Division of Arts, Humanities and Social Sciences

Dean: Marilyn Flores

Department Chair, History: Scott Howell

Faculty: Scott Howell, Narges Rabii-Rakin, Stephen Reed

Associate in Arts

History for Transfer (31720)

The Associate in Arts in History for Transfer degree provides a basic program to aid a student in thinking critically about one's self, one's cultural heritage, social and economic processes, and national and international affairs. Successful completion of the transfer degree in History guarantees the student acceptance to the California State University system to pursue a baccalaureate degree in History or a related field to pursue careers in a variety of government agencies, nongovernmental organizations (NGO), nonprofit organizations (NPO), international government organization (IGO), libraries or museums, and research programs.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Develop analytical skills by evaluating key historical decisions, testing hypotheses, and choosing among contending viewpoints (Critical Analysis).
- Develop communication skills through writing exercises and discussions of critical historical events (Communication Skills).
- Act as better informed citizens and knowledgeable voters through the study of U.S. political traditions and concepts of citizenship (Citizenship).
- Discuss, analyze, compare and contrast, diverse world cultural, religious, and political traditions (Diversity and Global Citizenship).

Major Requirements*

	Units
History 101/101H, World Civilizations to the 16th Century	3
History 102/102H, World Civilizations Since the 16th Century	3
History 120/120H, The United States to 1877	3
History 121/121H, The United States Since 1877	3
Select one (1) course from Area 1:	3
History 118, Social and Cultural History of the United States (3)	
History 124, Mexican-American History in the United States (3)	
History 127, Women in U.S. History (3)	
History 152, Latin American History (3)	
History 162, Asian Civilizations (3)	
Select one (1) course from Area 2:	3
Economics 102, Principles/Macro (3)	
Geography 100/100H, World Regional Geography (3)	
History 133, History of California (3)	
Philosophy 118, History of Philosophy (3)	
Political Science 101/101H, Introduction to American Government (3)	
Political Science 200/200H, American Political Thought (3)	
Political Science 201, Introduction to Comparative Politics (3)	
Political Science 220, International Politics (3)	
Political Science 221, Women in American Politics (3)	
Political Science 230, Political Theory (3)	
TOTAL	18

Courses

History 101

World Civilizations to the 16th Century

Unit(s): 3.0

Class Hours: 48 Lecture total.

Examines the development of world civilizations and their interrelationships through analysis of their basic ideas, institutions, personalities, and artistic achievements from the earliest beginnings to the sixteenth century. *CSU/UC*

History 101H

Honors World Civilizations to the 16th Century

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: A high school or college GPA of 3.0 or above.

An enriched approach designed for honors students that includes individual research as well as small group analysis of historical problems. Examines the development of world civilizations and their interrelationships through analysis of their basic ideas, institutions, personalities, and artistic achievements from the earliest beginnings to the sixteenth century. *CSU/UC*

History 102

World Civilizations Since the 16th Century

Unit(s): 3.0

Class Hours: 48 Lecture total.

Broad historical study of world civilizations and their interrelationships from the 16th century to the present. Ideas, institutions, personalities, and artistic achievements which have contributed to present day society. *CSU/UC (C-ID)*

History 102H

Honors World Civilizations Since the 16th Century

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: A high school or college GPA of 3.0 or above.

An enriched approach designed for honors students with emphasis on individual research as well as small group analysis of historical problems. Broad historical study of world civilizations and their interrelationships from the 16th century to the present. Ideas, institutions, personalities, and artistic achievements which have contributed to present day society. *CSU/UC (C-ID)*

History 118

Social and Cultural History of the United States

Unit(s): 3.0

Class Hours: 48 Lecture total.

Examines social and cultural traditions during major historical periods. Focuses on American attitudes and responses to economic and technological changes, aesthetics, politics, music, art, language, architecture, folklore, high and popular culture. *CSU/UC*

History 120

The United States to 1877

(Formerly: History 120, The United States to 1865)

Unit(s): 3.0

Class Hours: 48 Lecture total.

Examines the major political, economic, intellectual, and social forces shaping American life from the colonial period through Reconstruction. Credit will not be given to students who already earned credit for History 122. *CSU/UC*

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.

**History 120H****Honors: The United States to 1877****(Formerly: History 120H, Honors: The United States to 1865)**

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: A high school or college GPA of 3.0 or above.

Seminar-style, content-enriched course for honors students that examines major political, economic, intellectual, and social forces shaping American life from the colonial period through Reconstruction. Credit will not be given to students who already earned credit for History 122. *CSU/UC (C-ID)*

History 121**The United States Since 1877****(Formerly: History 121, The United States Since 1865)**

Unit(s): 3.0

Class Hours: 48 Lecture total.

A critical analysis of American history. Includes industrial and technological development, the changing nature of society, cultural patterns, domestic politics, artistic attainments, and America's expanded world role. Credit will not be given to students who already earned credit for History 122. *CSU/UC (C-ID)*

History 121H**Honors the United States Since 1877****(Formerly: History 121H, Honors the United States Since 1865)**

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: A high school or college GPA of 3.0 or above.

Seminar-style, content-enriched course for honors students exploring a critical analysis of American history including industrial and technological development, the changing nature of society, cultural patterns, domestic politics, artistic attainments, and America's expanded world role. Credit will not be given to students who already earned credit for History 122. *CSU/UC (C-ID)*

History 122**American History-Dynamics of Change**

Unit(s): 3.0

Class Hours: 48 Lecture total.

Survey of the main cultural, economic, social, and political changes in American history. Fulfills the American institutions requirement for graduation. Credit will not be given to students who already earned credit for History 120/120H or 121/121H. *CSU/UC*

History 124**Mexican-American History in the United States**

Unit(s): 3.0

Class Hours: 48 Lecture total.

Survey of Mexican-American history in the U.S. from the Pre-Columbian period to the present. Emphasis on Mexican-American contributions to the political, social, economic, and cultural development of the U.S. Will also examine the relationship of Mexican-Americans to other cultural groups. *CSU/UC*

History 126**United States since 1945**

Unit(s): 3.0

Class Hours: 48 Lecture total.

Recommended Preparation: History 121.

This course covers the history of the United States from the end of World War II to contemporary times, emphasizing developments in politics, society, economics, and culture, including the role of race, sex, gender, and class issues. The politics of government policy and the foreign relations of the United States also receive attention. The history of the American people and the nation will be considered in the larger context of world history. *CSU/UC*

History 127**Women in U.S. History**

Unit(s): 3.0

Class Hours: 48 Lecture total.

Women of European, African, Native, Hispanic, and Asian backgrounds examined in United States (U.S.) History 1607-present. Emphasis on individuation, social status, family, reproduction, child care, slavery, jobs, gender politics, and political activism. Legal impact and theories of patriarchal oppression raised. *CSU/UC*

History 133**History of California**

Unit(s): 3.0

Class Hours: 48 Lecture total.

An examination of the major social, political, and economic developments that have shaped California history from the indigenous period to the present. Special attention given to regional issues, ethnic or cultural groups, constitutional matters, cultural change, and California's connection with the Pacific Basin. *CSU/UC*

History 152**Latin American History**

Unit(s): 3.0

Class Hours: 48 Lecture total.

A survey of Latin American History from the Indian and European origins to the 21st century with a focus on the historical background of the countries studied. Emphasis placed upon the interplay of Iberian, African and Indian influences upon social and cultural evolution. Also stressed are the Latin American relations with the United States in the 19th and 20th centuries. *CSU/UC*

History 162**Asian Civilizations**

Unit(s): 3.0

Class Hours: 48 Lecture total.

Historical survey of Asian Civilizations from the earliest time to the present. An analysis which contrasts and compares Asian cultures with an emphasis on geographic and demographic patterns and the dynamics of primitive, modern and transitional societies. Asian religions, rituals and thought, also included. Emphasis will be given to Islam, Hinduism, Shintoism, Daoism, Confucianism and Buddhism. *CSU/UC*

History 240**Introduction to Peace and Conflict Studies**

Unit(s): 3.0

Class Hours: 48 Lecture total.

Recommended Preparation: Political Science 101/101H or 220.

Historical, social and economic development of the world order along with a wide range approach integral to the examination of global studies, peace and conflict resolution. The study of peace and conflict areas to include the war system, war prevention, nonviolence, human rights, social justice, environmental sustainability and the role of the United Nations and other international governing bodies. *CSU/UC*



HUMAN DEVELOPMENT (HUD)

(See *Child Development*)

INTERDISCIPLINARY STUDIES (IDS)

Division of Arts, Humanities and Social Sciences

Dean: Marilyn Flores

Department Chair, Interdisciplinary Studies: Tiffany Gause

Santiago Canyon College offers multiple interdisciplinary degrees and certificates which span the boundaries of traditional academic majors. Students are provided with opportunities to pursue areas of emphases deriving from the interaction of different disciplines. The sequences of courses lead to degrees and certificates which incorporate concepts from the humanities and arts, the natural sciences and the social sciences. The broad framework of these awards enables students to explore the range of human knowledge.

Each degree and certificate includes a focused study in at least one established interdisciplinary core. Each award specifies the requirements necessary to earn the degree or the certificate.

For the Liberal Arts degrees, the areas of inquiry are referred to as "emphasis requirements". Major requirements for the associate degrees are in addition to the general education requirements. Certificates of Achievement do not require general education.

The interdisciplinary degrees and certificates can be found on:

Liberal Arts, pages 165-166

Modern Language, page 176

Science, pages 192-193

Social Science, pages 193-194

Courses

Interdisciplinary Studies 155

Human Sexuality

Unit(s): 3.0

Class Hours: 48 Lecture total.

An interdisciplinary review of the biological development and psychological influences across the lifespan, including neuroscience research and sociocultural considerations in the areas of gender, attraction, attachment, love, sexual orientations, anatomy, sexual arousal and response, conception, contraception, reproduction, health, including sexual coercion, sexually transmitted infections. **CSU/UC**

ITALIAN (ITAL)

Division of Arts, Humanities and Social Sciences

Dean: Marilyn Flores

Department Chair, Modern Languages: Elizabeth Baez

Courses

Italian 101

Elementary Italian I

Unit(s): 5.0

Class Hours: 80 Lecture total, 16 Laboratory total.

A college-level Italian course focusing on fundamentals of pronunciation, grammar, basic vocabulary, idioms, and simple conversation and composition, including supplementary cultural readings. Italian 101 is equivalent to two years of high-school Italian. **CSU/UC**

Italian 102

Elementary Italian II

Unit(s): 5.0

Class Hours: 80 Lecture total, 16 Laboratory total.

Prerequisite: Italian 101 or two years of high school Italian.

A college-level Italian course focusing on further training in pronunciation, more extensive vocabulary development, conversation, grammar, reading and composition. Italian 102 is equivalent to the third year of high school Italian. **CSU/UC**

Italian 194

Conversation and Composition

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: Italian 101 or two years high school Italian with grade of C or better.

Reinforcement of conversational and composition skills. Implementation of language structure through conversation, reading and composition. Discussions of Italian culture. **CSU**

Italian 195

Advanced Conversational Italian

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: Italian 102.

Further development of conversational skills. Review of language structures as well as reinforcement of new vocabulary and idioms through conversation, reading, and composition. Discussions of Italian culture. **CSU/UC**

Italian 201

Intermediate Italian I

Unit(s): 5.0

Class Hours: 80 Lecture total, 16 Laboratory total.

Prerequisite: Italian 102 or three years of high school Italian.

A college-level Italian class focusing on expansive review of usage and grammar, discussions of interpretive readings, conversation, and composition. **CSU/UC**

Italian 202

Intermediate Italian II

Unit(s): 5.0

Class Hours: 80 Lecture total, 16 Laboratory total.

Prerequisite: Italian 201 or four years of high school Italian.

A college-level Italian class focusing on a specialized review of grammar and composition along with discussions in Italian of history and culture based on literary materials. **CSU/UC**



KINESIOLOGY (KIN)

Division of Mathematics and Sciences

Dean: Martin Stringer

Department Co-Chairs, Kinesiology: Lisa Camarco, Ian Woodhead

Faculty: Lisa Camarco, Shawn Cummins, Ian Woodhead

Associate in Arts

Kinesiology for Transfer (32434)

The Associate in Arts in Kinesiology for Transfer prepares students to transfer to a four-year institution leading to a baccalaureate degree in Kinesiology. Completion of the degree also provides guaranteed admission with junior status to the CSU system in the Kinesiology major.

Please consult a counselor regarding specific course requirements for your transfer institution.

Upon completion of the Associate in Arts in Kinesiology for Transfer degree, students will have a general understanding of the human anatomy, human physiology, and mechanics of human movement, and be able to apply fitness-based concepts.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Demonstrate a general understanding of human anatomy, human physiology, and the mechanics of human movement.
- Demonstrate practical application of fitness concepts.

Major requirements*

	Units
Kinesiology 100, Introduction to Kinesiology	3
Biology 239, General Human Anatomy	4
Biology 249, Human Physiology	4

Select three (3) units from the following:

**Must select one (1) unit courses from three different areas:
Aquatics, Combatives, Dance, Fitness, or Team Sports.**

Aquatics

- Kinesiology 185A, Basic Swimming (1)
- Kinesiology 185B, Intermediate Swimming (1)
- Kinesiology 185C, Advanced Swimming (1)

Combatives

- Kinesiology 125A, Basic Cardio Kickboxing (1)
- Kinesiology 125B, Intermediate Cardio Kickboxing (1)

Dance

- Dance 106A, Introduction to Modern Dance (1)
- Dance 106B, Introduction to Modern Dance (1)
- Dance 108A, Introduction to Ballet (1)
- Dance 108B, Introduction to Ballet (1)
- Dance 115A, Introduction to Tap Dance (1)
- Dance 119A, Introduction to Jazz Dance (1)
- Dance 119B, Introduction to Jazz Dance (1)

Fitness

- Kinesiology 119, Personal Fitness Evaluation (1)
- Kinesiology 120A, Basic Aerobics (1)
- Kinesiology 120B, Intermediate Aerobics (1)
- Kinesiology 121A, Basic Step Aerobics (1)
- Kinesiology 126A, Basic Spin (1)
- Kinesiology 126B, Intermediate Spin (1)
- Kinesiology 127A, Basic Yoga (1)
- Kinesiology 127B, Intermediate Yoga (1)
- Kinesiology 140A, Basic Circuit Weight Training (1)
- Kinesiology 140B, Intermediate Circuit Weight Training (1)
- Kinesiology 140C, Advanced Circuit Weight Training (1)

- Kinesiology 146A, Basic Strength Training (1)
- Kinesiology 146B, Intermediate Strength Training (1)
- Kinesiology 146C, Advanced Strength Training (1)
- Kinesiology 147, Strength Training for Women (1)
- Kinesiology 200, Conditioning for Athletes-Men (1)
- Kinesiology 201, Conditioning for Athletes-Co-Ed (1)
- Kinesiology 202, Conditioning for Athletes-Women (1)
- Kinesiology 203, Speed and Agility-Men (1)
- Kinesiology 204, Speed and Agility-Women (1)

Team Sports

- Kinesiology 160A, Basic Basketball (1)
- Kinesiology 160B, Intermediate Basketball (1)
- Kinesiology 163A, Basic Indoor Soccer (1)
- Kinesiology 168A, Basic Volleyball (1)
- Kinesiology 168B, Intermediate Volleyball (1)

Select two (2) courses from the following (List A):

- Kinesiology 101, First Aid and CPR (3)
- Chemistry 210, General, Organic, and Biochemistry (5)
- Chemistry 219/219H, General Chemistry (5)
- Mathematics 219/219H, Statistics and Probability (4)
- OR
- Social Science 219/219H, Statistics and Probability (4)
- Physics 150A, Introductory Physics I (4)
- Physics 250A, Physics for Scientists and Engineers I (5)

7-10

TOTAL 21-24

Courses

Kinesiology 100

Introduction to Kinesiology

Unit(s): 3.0

Class Hours: 48 Lecture total.

This course is an introduction to the interdisciplinary approach to the study of human movement. An overview of the importance of the sub-disciplines in kinesiology will be discussed along with career opportunities in the areas of teaching, coaching, allied health, and fitness professions. **CSU (C-ID)**

Kinesiology 101

First Aid and CPR

Unit(s): 3.0

Class Hours: 48 Lecture total.

This course involves the theory and detailed demonstration of the first aid care of the injured. The student will learn to assess a victim's condition and incorporate proper treatment. Standard first aid, CPR, and automated external defibrillator (AED) certification(s) will be granted upon successful completion of requirements. **CSU/UC (C-ID)**

Kinesiology 102

Nutrition and Fitness

Unit(s): 2.0

Class Hours: 32 Lecture total.

An applied nutrition course designed to help improve the nutrition and health of active individuals. The course focuses on the prevention of disease, weight control, and improved physical and mental performance. **CSU/UC**

Kinesiology 104

Healthful Living

Unit(s): 3.0

Class Hours: 48 Lecture total.

Comprehensive look at factors that impact people's health, longevity and lifetime wellness. Areas covered will be personal fitness, nutrition, drugs, alcohol and tobacco, AIDS and sexually transmitted diseases, and degenerative diseases including cancer, heart disease, strokes and diabetes. **CSU/UC**



Kinesiology 109
Sport in US Society

Unit(s): 3.0
Class Hours: 48 Lecture total.

This course is a comprehensive look at sport in US society and how various ethnic and minority groups have influenced sport at the local, state and national levels. The influences of other cultures outside of the US will be reviewed and analyzed. A review of sport history will be conducted with communication and media influences also examined. **CSU**

Kinesiology 110
Women's Health Issues

Unit(s): 3.0
Class Hours: 48 Lecture total.

This course is designed to address health concepts as they apply to women. The topics range from personal fitness and nutrition habits to substance abuse; female reproductive structure and function; intimate and abusive relationships; disease transmission, prevention and aging. **CSU/UC**

Kinesiology 111
Sports Psychology

Unit(s): 3.0
Class Hours: 48 Lecture total.

An academic and practical examination of the psychological aspects of sport. Specific methods will be taught to enhance athletic performance through mental preparation and practice. **CSU**

Kinesiology 119
Personal Fitness Evaluation

Unit(s): 0.5-1.0
Class Hours: 32-48 Laboratory total.

Personal evaluation of your fitness level. Each student completes appointments that evaluate flexibility, strength, blood pressure, body composition, pulmonary function, resting electrocardiogram, and a graded exercise test. Students are required to record 24 hours of instructor supervised exercise. Designed for healthy individuals with no heart problems. Grade: Pass/No Pass. A combination of Kinesiology 119, 140A, 140B and 140C may be taken a maximum of four enrollments. **CSU/UC**

Kinesiology 120A
Basic Aerobics

Unit(s): 0.5-1.0
Class Hours: 32-48 Laboratory total.

Aerobic exercises, strength routines and stretching activities set to music designed to improve cardiovascular endurance and enhance muscular strength and flexibility. A combination of Kinesiology 120A, 120B, 121A, 126A and 126B may be taken a maximum of four enrollments. **CSU/UC**

Kinesiology 120B
Intermediate Aerobics

Unit(s): 0.5-1.0
Class Hours: 32-48 Laboratory total.

This course provides instruction in various aerobic and stretching movements set to music. Designed to tone the body, improve cardiovascular endurance, and increase one's ability to exercise safely and effectively. A combination of Kinesiology 120A, 120B, 121A, 126A and 126B may be taken a maximum of four enrollments. **CSU/UC**

Kinesiology 121A
Basic Step Aerobics

Unit(s): 0.5-1.0
Class Hours: 32-48 Laboratory total.

An aerobic exercise program that improves flexibility, aerobic conditioning, muscular strength and endurance by utilizing a platform for stepping up and down. Includes a variety of stepping routines and upper body strength training exercises in controlled rhythmic patterns set to music. A combination of Kinesiology 120A, 120B, 121A, 126A and 126B may be taken a maximum of four enrollments. **CSU/UC**

Kinesiology 123A
Basic Stretch, Flex, and Tone

Unit(s): 0.5-1.0
Class Hours: 32-48 Laboratory total.

A combination of beginning stretching and toning exercises to increase strength, flexibility, and overall body fitness. A combination of Kinesiology 123A, 123B, 127A and 127B may be taken a maximum of four enrollments. **CSU/UC**

Kinesiology 123B
Intermediate Stretch, Flex, and Tone

Unit(s): 0.5-1.0
Class Hours: 32-48 Laboratory total.

Intermediate level course designed to challenge and improve upon the individual's level of flexibility, muscle tone, and strength. A combination of Kinesiology 123A, 123B, 127A and 127B may be taken a maximum of four enrollments. **CSU/UC**

Kinesiology 125A
Basic Cardio Kickboxing

Unit(s): 0.5-1.0
Class Hours: 32-48 Laboratory total.

A series of combative boxing and kickboxing maneuvers designed to improve muscle tone, cardiovascular endurance, and self defense. A combination of Kinesiology 125A and 125B may be taken a maximum of four enrollments. **CSU/UC**

Kinesiology 125B
Intermediate Cardio Kickboxing

Unit(s): 0.5-1.0
Class Hours: 32-48 Laboratory total.

This intermediate level Cardio Boxing class will emphasize combative maneuvers that will enhance the cardiovascular fitness level as well as the personal safety of the students at an enhanced level of instruction. A combination of Kinesiology 125A and 125B may be taken a maximum of four enrollments. **CSU/UC**

Kinesiology 126A
Basic Spin

Unit(s): 0.5-1.0
Class Hours: 32-48 Laboratory total.

Students will be guided through workout phases on the bike with a basic introduction to warm ups, up-tempo cadences, sprints, climbs and cool downs. A combination of Kinesiology 120A, 120B, 121A, 126A and 126B may be taken a maximum of four enrollments. **CSU/UC**

Kinesiology 126B
Intermediate Spin

Unit(s): 0.5-1.0
Class Hours: 32-48 Laboratory total.

Students will be guided through intermediate level spin routines that challenge the cardiovascular and muscular endurance through varying cadence, resistance, and revolutions per minute (RPMs) set to up-tempo music. A combination of Kinesiology 120A, 120B, 121A, 126A and 126B may be taken a maximum of four enrollments. **CSU/UC**

**Kinesiology 127A****Basic Yoga**

Unit(s): 0.5-1.0

Class Hours: 32-48 Laboratory total.

This basic yoga class is an exercise program that emphasizes the practice of postures that strengthen the body, improve flexibility and create a feeling of well-being. A combination of Kinesiology 123A, 123B, 127A and 127B may be taken a maximum of four enrollments. *CSU/UC*

Kinesiology 127B**Intermediate Yoga**

Unit(s): 0.5-1.0

Class Hours: 32-48 Laboratory total.

This intermediate level yoga class is an exercise program that emphasizes the practice of postures that strengthen the body, improve flexibility and create a feeling of well-being. A combination of Kinesiology 123A, 123B, 127A and 127B may be taken a maximum of four enrollments. *CSU/UC*

Kinesiology 140A**Basic Circuit Weight Training**

Unit(s): 0.5-1.0

Class Hours: 24-48 Laboratory total.

This course introduces the basic principles related to the acquisition of muscular strength and endurance. Students will explore training techniques through the use of body weight and light weight equipment. Instruction is provided in the areas of functional fitness and the physiological adaptation process that occurs as a result of circuit training. Grade: Pass/No Pass. A combination of Kinesiology 119, 140A, 140B and 140C may be taken a maximum of four enrollments. *CSU/UC*

Kinesiology 140B**Intermediate Circuit Weight Training**

Unit(s): 0.5-1.0

Class Hours: 24-48 Laboratory total.

This course is designed for students with prior resistance training experience. Principles and training techniques for the development of muscle tone, muscle strength, and muscular endurance will be taught, as well as the use of weightbearing exercises to promote cardiovascular health benefits. Students will utilize weights, variable resistance machines, and other resistance equipment to advance their total body fitness. Grade: Pass/No Pass. A combination of Kinesiology 119, 140A, 140B and 140C may be taken a maximum of four enrollments. *CSU/UC*

Kinesiology 140C**Advanced Circuit Weight Training**

Unit(s): 0.5-1.0

Class Hours: 24-48 Laboratory total.

This course is designed for students possessing advanced knowledge and experience with resistance training exercises. Students will utilize weights, variable resistance machines, and a wide variety of weight-bearing activities and equipment to perform high intensity exercise. Muscular development will be achieved through implementation of a resistance training program built upon advanced modes of training and the principles of exercise physiology. Grade: Pass/No Pass. A combination of Kinesiology 119, 140A, 140B and 140C may be taken a maximum of four enrollments. *CSU/UC*

Kinesiology 146A**Basic Strength Training**

Unit(s): 0.5-1.0

Class Hours: 24-48 Laboratory total.

This course introduces students to the basic principles of resistance training through the use of free weight barbells and dumbbells. Emphasis is placed on the development of muscular strength and muscular endurance. Instruction is provided in the areas of free weight safety and practical application of basic strength training concepts. Grade: Pass/No Pass. A combination of Kinesiology 146A, 146B, 146C and 147 may be taken a maximum of four enrollments. *CSU/UC*

Kinesiology 146B**Intermediate Strength Training**

Unit(s): 0.5-1.0

Class Hours: 24-48 Laboratory total.

This high intensity strength training course is designed for students who possess significant experience in the use of free weight equipment. Students will apply proper weight lifting techniques and training periodization to develop muscular strength and power through the use of dumbbells and Olympic bar weights. Instruction is provided in advanced strength training theory. Grade: Pass/No Pass. A combination of Kinesiology 146A, 146B, 146C and 147 may be taken a maximum of four enrollments. *CSU/UC*

Kinesiology 146C**Advanced Strength Training**

Unit(s): 0.5-1.0

Class Hours: 24-48 Laboratory total.

This course is designed for students with advanced knowledge and extensive experience in free weight strength training. Instruction will focus on training methods applicable to multi-joint powerlifting, Olympic lifting, and sport strength and conditioning. Students will develop individualized workout programs that emphasize the development of muscular strength, power, agility, and explosiveness. Grade: Pass/No Pass. A combination of Kinesiology 146A, 146B, 146C and 147 may be taken a maximum of four enrollments. *CSU/UC*

Kinesiology 147**Strength Training for Women**

Unit(s): 0.5-1.0

Class Hours: 24-48 Laboratory total.

This course is designed to teach students the health and fitness benefits of a regular strength training program. Instruction will focus on the development of muscular strength and endurance, muscle toning, and improvement of body composition and joint stability through the use of free weight exercises and equipment. Emphasis is placed on the lifelong benefits of strength training for the female population. Grade: Pass/No Pass. A combination of Kinesiology 146A, 146B, 146C and 147 may be taken a maximum of four enrollments. *CSU/UC*

Kinesiology 160A**Basic Basketball**

Unit(s): 0.5-1.0

Class Hours: 32-48 Laboratory total.

To introduce and establish basketball fundamentals with a view to encouraging life-time fitness. A combination of Kinesiology 160A, 160B, 163A, 168A and 168B may be taken a maximum of four enrollments. *CSU/UC*

Kinesiology 160B**Intermediate Basketball**

Unit(s): 0.5-1.0

Class Hours: 32-48 Laboratory total.

Intermediate level course to further develop passing, dribbling and various types of shooting. Emphasis will be placed on small group defense, small group offense, rules, special situations and strategies. A combination of Kinesiology 160A, 160B, 163A, 168A and 168B may be taken a maximum of four enrollments. *CSU/UC*



Kinesiology 163A
Basic Indoor Soccer

Unit(s): 0.5-1.0

Class Hours: 32-48 Laboratory total.

A basic level soccer course to develop fundamental soccer skills in an indoor facility. A combination of Kinesiology 160A, 160B, 163A, 168A and 168B may be taken a maximum of four enrollments. *CSU/UC*

Kinesiology 168A
Basic Volleyball

Unit(s): 0.5-1.0

Class Hours: 32-48 Laboratory total.

This course introduces the fundamental strategies and skills of volleyball, including setting, passing, spiking, blocking and serving, as well as the beginning concepts of team and tournament play. A combination of Kinesiology 160A, 160B, 163A, 168A and 168B may be taken a maximum of four enrollments. *CSU/UC*

Kinesiology 168B
Intermediate Volleyball

Unit(s): 0.5-1.0

Class Hours: 32-48 Laboratory total.

An intermediate volleyball class to improve volleyball skills, in the areas of passing, setting, hitting, serving and blocking, as well as basic offensive and defensive systems of play. The course includes discussions of rules and strategy. A combination of Kinesiology 160A, 160B, 163A, 168A and 168B may be taken a maximum of four enrollments. *CSU/UC*

Kinesiology 185A
Basic Swimming

Unit(s): 0.5-1.0

Class Hours: 32-48 Laboratory total.

This course introduces basic swimming skills, emphasizing water safety. A combination of Kinesiology 185A, 185B, 185C and 189A may be taken a maximum of four enrollments. *CSU/UC*

Kinesiology 185B
Intermediate Swimming

Unit(s): 0.5-1.0

Class Hours: 32-48 Laboratory total.

This course develops intermediate swim skills, emphasizing the four competitive swim strokes. Speed and endurance swimming will be emphasized in a training environment. A combination of Kinesiology 185A, 185B, 185C and 189A may be taken a maximum of four enrollments. *CSU/UC*

Kinesiology 185C
Advanced Swimming

Unit(s): 0.5-1.0

Class Hours: 32-48 Laboratory total.

Advanced swim skills developed with emphasis on the five competitive swim strokes. Advanced speed and endurance training will be emphasized in a training environment. A combination of Kinesiology 185A, 185B, 185C and 189A may be taken a maximum of four enrollments. *CSU/UC*

Kinesiology 189A
Basic Aqua Aerobics

Unit(s): 0.5-1.0

Class Hours: 32-48 Laboratory total.

A class designed to improve muscle tone, flexibility and cardiovascular endurance through exercises using water as a means of resistance. A combination of Kinesiology 185A, 185B, 185C and 189A may be taken a maximum of four enrollments. *CSU/UC*

Kinesiology 200
Conditioning for Athletes-Men

Unit(s): 0.5-1.0

Class Hours: 32-48 Laboratory total.

An instructor supervised exercise program designed for athletes who participate in men's sports. Emphasis will be on the development of speed, endurance, flexibility, and strength. May be repeated. Students may take a maximum of 350 hours of any team sport, team off-season course or conditioning course per academic year. *CSU/UC*

Kinesiology 201
Conditioning for Athletes-Co-Ed

Unit(s): 0.5-1.0

Class Hours: 32-48 Laboratory total.

An instructor supervised exercise program designed for athletes who participate in sports. Emphasis will be on the development of speed, endurance, flexibility, and strength. May be repeated. Students may take a maximum of 350 hours of any team sport, team off-season course or conditioning course per academic year. *CSU/UC*

Kinesiology 202
Conditioning for Athletes-Women

Unit(s): 0.5-1.0

Class Hours: 32-48 Laboratory total.

An instructor supervised exercise program designed for athletes who participate in women's sports. Emphasis will be on the development of speed, endurance, flexibility, and strength. May be repeated. Students may take a maximum of 350 hours of any team sport, team off-season course or conditioning course per academic year. *CSU/UC*

Kinesiology 203
Speed and Agility-Men

Unit(s): 0.5-1.0

Class Hours: 32-48 Laboratory total.

This class is designed for male athletes to increase running speed. This class includes instruction on linear speed, non-linear speed, and jumping ability using state of the art plyometric training and speed specific training tools. May be repeated. Students may take a maximum of 350 hours of any team sport, team off-season course or conditioning course per academic year. *CSU/UC*

Kinesiology 204
Speed and Agility-Women

Unit(s): 0.5-1.0

Class Hours: 32-48 Laboratory total.

This class is designed for female athletes to increase running speed. This class includes instruction on linear speed, non-linear speed, and jumping ability using state of the art plyometric training and speed specific training tools. May be repeated. Students may take a maximum of 350 hours of any team sport, team off-season course or conditioning course per academic year. *CSU/UC*

Kinesiology 240
Basketball Team- Men

Unit(s): 3.0

Class Hours: 160 Laboratory total.

A high-level competitive program in Basketball for male athletes with exceptional athletic talent. Students must meet California Community College Athletic Association (CCCAA) eligibility requirements and pass a health screening prior to competing. May be repeated. Students may take a maximum of 350 hours of any team sport, team off-season course or conditioning course per academic year. *CSU/UC*

**Kinesiology 241****Basketball Team- Women**

Unit(s): 3.0

Class Hours: 160 Laboratory total.

A high-level competitive program in Basketball for female athletes with exceptional athletic talent. Students must meet California Community College Athletic Association (CCCAA) eligibility requirements and pass a health screening prior to competing. May be repeated. Students may take a maximum of 350 hours of any team sport, team off-season course or conditioning course per academic year. *CSU/UC*

Kinesiology 245**Volleyball Team- Men**

Unit(s): 3.0

Class Hours: 160 Laboratory total.

A high-level competitive program in Volleyball for male athletes with exceptional athletic talent. Students must meet California Community College Athletic Association (CCCAA) eligibility requirements and pass a health screening prior to competing. May be repeated. Students may take a maximum of 350 hours of any team sport, team off-season course or conditioning course per academic year. *CSU/UC*

Kinesiology 246**Volleyball Team- Women**

Unit(s): 3.0

Class Hours: 160 Laboratory total.

A high-level competitive program in Volleyball for female athletes with exceptional athletic talent. Students must meet California Community College Athletic Association (CCCAA) eligibility requirements and pass a health screening prior to competing. May be repeated. Students may take a maximum of 350 hours of any team sport, team off-season course or conditioning course per academic year. *CSU/UC*

Kinesiology 250**Track and Field Team-Men**

Unit(s): 3.0

Class Hours: 160 Laboratory total.

A high-level, competitive program for male students with exceptional track and field talent. Students must meet California Community College Athletic Association (CCCAA) eligibility requirements and pass a health screening prior to participation. May be repeated. Students may take a maximum of 350 hours of any team sport, team off-season course or conditioning course per academic year. *CSU/UC*

Kinesiology 251**Track and Field Team-Women**

Unit(s): 3.0

Class Hours: 160 Laboratory total.

A high-level, competitive program for female students with exceptional track and field talent. Students must meet California Community College Athletic Association (CCCAA) eligibility requirements and pass a health screening prior to participation. May be repeated. Students may take a maximum of 350 hours of any team sport, team off-season course or conditioning course per academic year. *CSU/UC*

Kinesiology 252**Track and Field Team-Off Season**

Unit(s): 0.5-1.0

Class Hours: 32-48 Laboratory total.

Students learn the principles involved with team ethics and values by working cooperatively with coaches and teammates. This entails learning the values of discipline, work ethic, commitment, and loyalty. Participants will train to improve technique and competitive performance in track and field. May be repeated. Students may take a maximum of 350 hours of any team sport, team off-season course or conditioning course per academic year. *CSU/UC*

Kinesiology 255**Cross Country Team-Men**

Unit(s): 3.0

Class Hours: 160 Laboratory total.

A high-level, competitive program for male students with exceptional cross country talent. Students must meet California Community College Athletic Association (CCCAA) eligibility requirements and pass a health screening prior to participation. May be repeated. Students may take a maximum of 350 hours of any team sport, team off-season course or conditioning course per academic year. *CSU/UC*

Kinesiology 256**Cross Country Team-Women**

Unit(s): 3.0

Class Hours: 160 Laboratory total.

A high-level, competitive program for female students with exceptional cross country talent. Students must meet California Community College Athletic Association (CCCAA) eligibility requirements and pass a health screening prior to participation. May be repeated. Students may take a maximum of 350 hours of any team sport, team off-season course or conditioning course per academic year. *CSU/UC*

Kinesiology 257**Cross Country Team-Off Season**

Unit(s): 0.5-1.0

Class Hours: 32-48 Laboratory total.

This course teaches the fundamental principles and techniques of efficient, high intensity distance running. The course helps develop and improve physical fitness and performance in terms of both running endurance and running speed. Optional field trips may be offered. May be repeated. Students may take a maximum of 350 hours of any team sport, team off-season course or conditioning course per academic year. *CSU*

Kinesiology 265**Golf Team-Men**

Unit(s): 3.0

Class Hours: 160 Laboratory total.

A high-level, competitive program for male students with exceptional golf talent. Students must meet California Community College Athletic Association (CCCAA) eligibility requirements and pass a health screening prior to participation. May be repeated. Students may take a maximum of 350 hours of any team sport, team off-season course or conditioning course per academic year. *CSU/UC*

Kinesiology 267**Golf Team-Off Season**

Unit(s): 0.5-1.0

Class Hours: 32-48 Laboratory total.

Application of advanced golf techniques as they relate to practice techniques and competitive play in the sport of golf. The class will focus on playing lessons on regulation golf courses. May be repeated. Students may take a maximum of 350 hours of any team sport, team off-season course or conditioning course per academic year. *CSU/UC*

Kinesiology 270**Soccer Team-Men**

Unit(s): 3.0

Class Hours: 160 Laboratory total.

A high-level, competitive program in soccer for male athletes with exceptional athletic talent. Students must meet California Community College Athletic Association (CCCAA) eligibility requirements and pass a health screening prior to participation. May be repeated. Students may take a maximum of 350 hours of any team sport, team off-season course or conditioning course per academic year. *CSU/UC*



Kinesiology 271

Soccer Team-Women

Unit(s): 3.0

Class Hours: 160 Laboratory total.

A high-level, competitive program in soccer for female athletes with exceptional athletic talent. Students must meet California Community College Athletic Association (CCCAA) eligibility requirements and pass a health screening prior to participation. May be repeated. Students may take a maximum of 350 hours of any team sport, team off-season course or conditioning course per academic year. *CSU/UC*

Kinesiology 272

Soccer Team Off Season-Men

Unit(s): 0.5-1.0

Class Hours: 32-48 Laboratory total.

A high-level, competitive practice and skills program in soccer for male students with exceptional athletic talent. May be repeated. Students may take a maximum of 350 hours of any team sport, team off-season course or conditioning course per academic year. *CSU/UC*

Kinesiology 273

Soccer Team Off Season-Women

Unit(s): 0.5-1.0

Class Hours: 32-48 Laboratory total.

A high-level, competitive practice and skills program in soccer for female students with exceptional athletic talent. May be repeated. Students may take a maximum of 350 hours of any team sport, team off-season course or conditioning course per academic year. *CSU/UC*

Kinesiology 274

Theory of Soccer

Unit(s): 2.0

Class Hours: 32 Lecture total.

A general overview of the history of the game, its rules, tactics, techniques, conditioning and overall preparation to understand, play and enjoy soccer. *CSU/UC*

Kinesiology 281

Softball Team-Women

Unit(s): 3.0

Class Hours: 160 Laboratory total.

A high-level, competitive program in softball for female student athletes with exceptional athletic talent. Students must meet California Community College Athletic Association (CCCAA) eligibility requirements and pass a health screening prior to participation. May be repeated. Students may take a maximum of 350 hours of any team sport, team off-season course or conditioning course per academic year. *CSU/UC*

Kinesiology 283

Softball Team Off Season-Women

Unit(s): 0.5-1.0

Class Hours: 32-48 Laboratory total.

Basic skills and fundamentals of catching, throwing, pitching, hitting and base running will be covered. Offensive and defensive techniques and strategies will be practiced. May be repeated. Students may take a maximum of 350 hours of any team sport, team off-season course or conditioning course per academic year. *CSU/UC*

Kinesiology 284

Theory of Softball

Unit(s): 2.0

Class Hours: 32 Lecture total.

A general overview of rules, regulations, strategies, mental preparation, skill evaluation and the history of the sport of softball. *CSU/UC*

LIBERAL ARTS

**Associate of Arts/Science
Liberal Arts**

The integrated curriculum of the Liberal Arts degree provides a broad exposure to the arts, humanities, sciences, and social sciences, while offering the opportunity for depth of knowledge within an area of emphasis. The program will enable students to develop an appreciation and understanding of the logic, aesthetic, and ethical values that have shaped and enriched our culture and to develop intellectual maturity, a deeper understanding of themselves, others, and the world. The curriculum provides a basic framework for lifelong individual study as well as preparation for university study.

Emphasis requirements*	Units
Complete a minimum of 18 units selected from one of the following areas of emphasis: Arts, Humanities and Communication; Mathematics and Sciences; Multi-Cultural Studies; or Social and Behavioral Sciences.	18

Students are encouraged to select two or more courses within a single discipline in an "area of emphasis" to expand their depth of knowledge within a discipline. All courses in the area of emphasis must be completed with a letter grade of "C" or better. Students are advised to meet with a counselor to select the area of emphasis most appropriate to their educational goal.

In addition to the area of emphasis, students are required to complete a general education pattern (Plan A, B, or C). Students are advised to meet with a counselor to select the general education pattern most appropriate to their educational goals.

Units used to satisfy an area of emphasis may be used to satisfy general education requirements.

Associate of Arts in Arts, Humanities and Communication (18317)

These courses emphasize the study of cultural literacy, humanistic activities and the artistic expression of human beings. Students will evaluate and interpret the ways in which people through the ages in different cultures have responded to themselves and the world around them in artistic and cultural creation. Students will also learn to value aesthetic understanding and incorporate these concepts when constructing value judgments. This area of emphasis will prepare students for a variety of majors within the Humanities discipline including Creative Writing, English, Foreign Language, Humanities and Art, and Philosophy. It will also provide lower-division preparation for a wide range of majors with the Communications discipline.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Think critically in terms of constructing arguments and presenting evidence to support their views through oral, artistic and written communication.
- Understand and articulate how culture, society, and diversity shape the role of the individual within society and human relations across cultures and disciplines.

Emphasis requirements	(18 units minimum)
American Sign Language 110, 111, 116, 210; Anthropology 104; Art 100/100H, 101, 102; Communication 100/100H, 101, 110, 111; Dance 100; English 101/101H, 102/102H, 103/103H, 231, 232, 233A, 233B, 241, 242, 246, 270, 271, 272, 278; French 101, 102, 194, 196, 201, 202; History 101/101H, 102/102H, 152, 162; Italian 101, 102, 194, 195, 201, 202; Music 101/101H, 102, 103, 104; Philosophy 106/106H, 108, 110/110H, 111, 112, 115, 118, 120; Reading 150; Spanish 101/101H, 101A, 101B, 102/102H, 194, 195A, 195B, 201, 202; Television/Video Communications 103, 104; Theatre Arts, 100	

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Associate of Science in Mathematics and Sciences (18318):

The science courses in this category examine the physical universe, its life forms and its natural phenomena. These courses will assist the student in developing an appreciation of the scientific method and encourage an understanding of the relationships between science and other human activities. The mathematics courses will encourage the understanding of mathematical concepts through the development of quantitative reasoning skills. **Students are required to complete at least one mathematics course within this area of emphasis.** This area of emphasis will provide students with lower-division preparation for a variety of majors within the scientific disciplines, including Astronomy, Biology, Chemistry, Geology, and Physics and will provide preparation for Mathematics majors. Additionally, students may undertake preparation for Nursing, Kinesiology, Public Health and other Health Science majors. Many of the courses will also assist students in prerequisite preparation for graduate programs within the Health Sciences.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Demonstrate an ability to analyze and evaluate scientific and mathematical topics.
- Clearly communicate scientific and mathematical reasoning and qualitative problem solving skills using appropriate vocabulary, methodologies and diverse technologies.

Emphasis requirements (18 units minimum)

Anthropology 101; Astronomy 109, 110, 112, 140; Biology 109/109H, 109L, 139, 149, 177, 200, 211, 212, 214, 221, 229, 231, 239, 249, 259; Chemistry 209, 210, 219/219H, 229, 249, 259; Earth Sciences 100, 100L, 111, 120, 121, 160; Engineering 210, 220, 225, 230; Geography 101; Geology 142, 260; Mathematics 080, 105, 140, 150, 160, 170, 180/180H, 185, 219/219H, 280, 287, 290, 295; Physical Science 100; Physics 100, 150A, 150AC, 150B, 150BC, 250A, 250B, 250C; Social Science 219/219H

Associate of Arts in Multi-Cultural Studies (18319):

These inter-disciplinary courses promote an appreciation of multi-cultural influences in contemporary society. Courses in this category encourage students to acquire the knowledge, skills and attitude needed to function effectively in a pluralistic democratic society and to interact, negotiate and communicate with peoples from diverse groups in order to create a civic and moral community that works for the common good. This emphasis will provide students with lower-division major preparation for disciplines within the area of study devoted to culture and society. These majors would include Chicano Studies, Ethnic Studies, Foreign Language, Global Studies, International Development and Women's Studies.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Appreciate the multi-cultural influences on our contemporary culture and society.
- Communicate effectively with individuals and groups from diverse populations.
- Acquire knowledge, skills, and attitudes to function positively and productively within a diverse society and in upper division coursework.

Emphasis requirements (18 units minimum)

American Sign Language 116; Anthropology 100/100H, 104; Art 101, 102; Chicano Studies 101; Communication 120/120H, 225/225H; Counseling 101, 116, 118, 150; Education 101; English 246, 271, 272, 278; Ethnic Studies 101; French 101, 102, 194, 196, 201, 202; History 124, 127, 152, 162; Italian 101, 102, 194, 195, 201, 202; Kinesiology 110; Music 103; Philosophy 112; Political Science 221; Psychology 170; Spanish 101/101H, 101A, 101B, 102/102H, 194, 195A, 195B, 201, 202; Women's Studies 101, 102

Associate of Arts in Social and Behavioral Sciences (18320):

Courses in this category emphasize the connection between human behavior and social, political and economic institutions and promote an understanding of how societies and social subgroups operate. Students will be encouraged to apply critical thinking techniques as they evaluate the way individuals act and have acted in response to their societies. The courses will ensure opportunities for students to develop an understanding of the perspectives and methods of inquiry used in the social and behavioral sciences. This area of emphasis will provide students with lower-division major preparation for many disciplines within the social sciences including Criminal Justice, Economics, Political Science, Psychology, Sociology and History.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Think critically about how individuals are influenced by political, economic, cultural and family institutions in various cultural settings.
- Experience using social science methods of data collection and analysis in order to draw logical conclusions about individuals and society.
- Discuss, compare and contrast, and analyze U.S. and world political systems in various historical periods.

Emphasis requirements (18 units minimum)

Anthropology 100/100H, 103, 104; Chicano Studies 101; Child Development 107, 110, 205, 206, 221; Communication 120/120H, 225/225H; Computer Science 100; Counseling 150; Criminal Justice 101; Economics 101, 102; English 278; Ethnic Studies 101; Geography 100/100H, 102; History 101/101H, 102/102H, 118, 120/120H, 121/121H, 122, 124, 127, 133, 152, 162, 240; Interdisciplinary Studies 155; Kinesiology 109; Mathematics 219/219H; Political Science 101/101H, 200/200H, 220, 221, 230; Psychology 100/100H, 157, 170, 200, 219, 230, 240, 250; Social Science 219/219H; Sociology 100/100H, 116/116H, 130, 240; Television/Video Communications 105; Women's Studies 101, 102



LIBRARY & INFORMATION STUDIES (LIBI)

Division of Institutional Effectiveness, Library and Learning Support Services

Dean: Aaron Voelcker

Department Chair, Library: Joseph Geissler

Faculty: Joseph Geissler, Alice Ho, Linda Martin, Barbara Sproat, Lana Wong

Courses

Library & Information Studies 100

Library Research Fundamentals

Unit(s): 1.0

Class Hours: 16 Lecture total.

This course is an introduction to college-level research skills for effective use of traditional and electronic library resources. Instruction includes print and non-print information sources such as reference books, scholarly material, online subscription databases and the Internet. Students will visit a library to complete hands-on exercises. *CSU/UC*

Library & Information Studies 103

Advanced Internet Research

Unit(s): 1.0

Class Hours: 16 Lecture total.

Learn essential library research strategies for effectively locating and evaluating online information on the Internet. Core topics are designing and performing successful search strategies, evaluating online information using critical thinking skills, identifying the ethical and legal aspects of using online sources, and citing web sources using a standard documentation style. *CSU/UC*

MANAGEMENT (MGMT)

Division of Business and Career Technical Education

Dean: Von Lawson

Department Co-Chairs, Business: Steven Deeley, Stewart Myers

Faculty: Steven Deeley

The Associate of Science degree and Certificates in Management are designed to prepare students for various management positions in business, government, and public organizations; to aid existing managers in upgrading their skills; and to assist employees for promotion to management/supervision positions.

Associate of Science

General Management (11861)

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Qualify for a management position.

Major requirements*	Units
Accounting 101 Financial Accounting	4
Business 100, Fundamentals of Business	3
Business 120/Management 120, Principles of Management	3
Business 222, Business Writing	
OR	3
Management 122, Business Communications	
Select two (2) courses from the following:	6-7
Accounting 102, Managerial Accounting (4)	
Business 105, Legal Environment of Business (3)	
Business 121/Management 121, Human Relations and Organizational Behavior (3)	
Business 150, Introduction to Information Systems and Applications (3)	
Marketing 113, Principles of Marketing (3)	
TOTAL	19-20

Certificate of Proficiency

Human Resource Management

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Prepare for employment in the human resources field.

Certificate requirements	Units
Management 120/Business 120, Principles of Management	3
Management 121/Business 121, Human Relations and Organizational Behavior	3
Management 135, Human Resource Management	3
Business 105, Legal Environment of Business	3
TOTAL	12

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Certificate of Proficiency Supervision

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Have the background to become a first level supervisor.

Certificate requirements	Units
Management 121/Business 121, Human Relations and Organizational Behavior	3
Management 122, Business Communications OR Business 222, Business Writing	3
Management 120/Business 120, Principles of Management OR Management 123, Supervision	3
Management 135, Human Resource Management	3
TOTAL	12

Courses

Management 120

Principles of Management

Unit(s): 3.0

Class Hours: 48 Lecture total.

Principles, methods, and procedures essential to the successful management of human and financial resources. Planning, decision making, staffing, directing, motivating, leading, communicating, controlling, and the application of managerial skills. (Same as Business 120.) **CSU**

Management 121

Human Relations and Organizational Behavior

Unit(s): 3.0

Class Hours: 48 Lecture total.

The role of the manager and management's relationship to employees. Includes the application of motivational theories, communications, leadership, and organizational structure. (Same as Business 121.) **CSU**

Management 122

Business Communications

Unit(s): 3.0

Class Hours: 48 Lecture total.

Recommended Preparation: English 061 or American College English 116.

Professional and conversational oral and written communication skills used in business. Emphasis on writing and speaking skills, solutions to communication problems, ethical issues, and techniques for communicating successfully in today's business environment. Designed for professionals seeking career advancement. Not intended for students seeking an AST in Business Administration. **CSU**

Management 123

Supervision

Unit(s): 3.0

Class Hours: 48 Lecture total.

A practical, skill building approach to learning and understanding first-line management and supervision. Designed to provide beginning and experienced supervisors with a hands-on situational approach using supervisory skills. **CSU**

Management 135

Human Resource Management

Unit(s): 3.0

Class Hours: 48 Lecture total.

Introductory course covers the goals, activities, and challenges of human resources. Includes equal employment opportunity and diversity, recruitment and selection, leadership and motivation, training and development, compensation, employee and labor/management relations. **CSU**



MARKETING (MKTG)

Division of Business and Career Technical Education

Dean: Von Lawson

Department Co-Chairs, Business: Steven Deeley, Stewart Myers

Faculty: Lynda Armbruster, Andy Salcido

The Associate of Science degree and Certificates in Marketing are designed to prepare students for various marketing, sales, and retail store management positions; to assist existing marketing managers and sales professionals in upgrading their skills; and to open up new career opportunities within the marketing field. Program content includes selection and buying of merchandise, advertising, sales, product distribution, customer relations, and pricing. The student will then specialize in one of the option areas: general marketing, professional selling, advertising, or retailing management. The certificate program provides practical skills for the student within specific areas of marketing.

Associate of Science General Marketing (11866)

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Have the skills for an entry-level marketing position.

Major requirements*	Units
Accounting 101, Financial Accounting	4
Business 222, Business Writing	
OR	3
Management 122, Business Communications	
Marketing 112, Principles of Advertising	3
Marketing 113, Principles of Marketing	3
Marketing 115, Consumer Behavior	3
Select one (1) course from the following:	3
Business 100, Fundamentals of Business (3)	
Business 127, Introduction to E-Commerce (3)	
Marketing 114, Professional Selling (3)	
Marketing 135, Web Marketing and Promotion (3)	
TOTAL	19

Certificate of Proficiency General Marketing

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Have enough knowledge of marketing for an entry-level position.

Certificate requirements	Units
Marketing 112, Principles of Advertising	3
Marketing 113, Principles of Marketing	3
Marketing 114, Professional Selling	3
Marketing 115, Consumer Behavior	3
TOTAL	12

Certificate of Proficiency Advertising

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Be employable at a first-level advertising position.

Certificate requirements	Units
Marketing 112, Principles of Advertising	3
Marketing 113, Principles of Marketing	3
Marketing 115, Consumer Behavior	3
Marketing 135, Web Marketing and Promotion	3
TOTAL	12

Certificate of Proficiency Web Marketing

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Have the knowledge for an entry-level web marketing position.

Certificate requirements	Units
Marketing 113, Principles of Marketing	3
Marketing 135, Web Marketing and Promotion	3
Business 127, Introduction to E-Commerce	3
Computer Information Systems 124, Adobe Photoshop	
OR	3
Computer Information Systems 126, Website Development for Business	
TOTAL	12

Courses

Marketing 112 Principles of Advertising

Unit(s): 3.0

Class Hours: 48 Lecture total.

A study of the impact of advertising on the American economy and how it fits within the broader disciplines of business and marketing and how it relates to journalism and the field of communication and the use of persuasive techniques with products, services, or ideas. Discover what advertising people do and how they do it, the artistic creativity and technical expertise required and career opportunities within the field. **CSU**

Marketing 113 Principles of Marketing

Unit(s): 3.0

Class Hours: 48 Lecture total.

An introduction to modern marketing concepts and issues in an organization as well as the effects of marketing on society. Content includes an overview of marketing in the global business environment, buyer behavior, target marketing and the marketing mix. **CSU**

Marketing 114 Professional Selling

Unit(s): 3.0

Class Hours: 48 Lecture total.

Introductory course covering sales presentations, communication styles, techniques and practices. Includes using sales techniques during job interviews and other aspects of "Selling Yourself" for career enhancement. Covers objectives in selling from the perspective of the consumer, business and society. **CSU**

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.


Marketing 115
Consumer Behavior

Unit(s): 3.0

Class Hours: 48 Lecture total.

The investigation and analysis of why consumers select, purchase, use, and dispose of goods and services to satisfy their personal and business needs. *CSU*

Marketing 135
Web Marketing and Promotion

Unit(s): 3.0

Class Hours: 48 Lecture total.

How to include the Internet in a business marketing plan. Covers advertising and promoting products, services or ideas on the Internet, audience identification, search engine strategies and other basics of increasing business effectiveness with Internet usage. *CSU*

Marketing 172
Small Business Marketing and Advertising

Unit(s): 3.0

Class Hours: 48 Lecture total.

Techniques for small business marketing including planning, customer research, advertising, media selection, budgeting and scheduling, and the evaluation of marketing effectiveness. *CSU*

MATHEMATICS (MATH)

Division of Mathematics and Sciences

Dean: Martin Stringer**Department Co-Chairs, Mathematics:** Alicia Frost, Scott Sakamoto, Laney Wright**Faculty:** Cher Carrera, Matthew Cotter, Veselka Danova, Darlene Diaz, Alicia Frost, Anne Hauscarriague, Vanessa Jones, Jessica Kramer, Kathleen Moore, Scott Sakamoto, Randy Scott, Joyce Wagner, Alison Williams, Laney Wright

Associate in Science

Mathematics for Transfer (31040)

The Associate in Science in Mathematics for Transfer degree prepares students to transfer to a four-year institution leading to a baccalaureate degree. Employment opportunities are available as mathematicians in government, health, industry and education. Successful completion of the transfer degree in Mathematics guarantees the student acceptance to the California State University system to pursue a baccalaureate degree in Mathematics or a related field.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Integrate into educational and professional conduct a calm, confident, and ethical approach to mathematical reasoning and problem solving while taking personal responsibility for mathematical success.
- Create mathematical models of real world phenomena, apply those models to make predictions about the behavior of the phenomena, apply appropriate problem solving techniques and critically evaluate the veracity of the obtained results.
- Clearly communicate mathematical reasoning and problem solving skills using a variety of formats, diverse technologies, and appropriate mathematical vocabulary and notation.

Major requirements*	Units
Mathematics 180/180H, Single Variable Calculus I	4
Mathematics 185, Single Variable Calculus II	4
Mathematics 280, Intermediate Calculus	4
Select one (1) course from the following (List A):	3-5
Mathematics 287, Introduction to Linear Algebra and Differential Equations (5)	
Mathematics 290, Linear Algebra (3)	
Mathematics 295, Differential Equations (3)	
Select one (1) course from the following (List B):	3-5
Computer Science 112, Java Programming (3)	
Computer Science 120, Introduction to Programming (3)	
Computer Science 213, C# Programming (3)	
Mathematics 219/219H, Statistics and Probability (4)	
Social Science 219/219H, Statistics and Probability (4)	
Physics 250A, Physics for Scientists and Engineers I (5)	
TOTAL	18-22

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Courses

**Mathematics N06
Essential Mathematics**

Unit(s): 4.0
Class Hours: 64 Lecture total.

The review of whole numbers, fractions, decimals, percents, geometric formulas and signed numbers. Not applicable to associate degree.

**Mathematics N06L
Essential Mathematics Math Lab**

Unit(s): 0.2
Class Hours: 10 Laboratory total.
Corequisite: Mathematics N06.

Students in Mathematics N06L will receive individual and/or group instruction. The course is designed to review, enhance and/or advance the students' mathematical knowledge based on their individual need in whole numbers, fractions, decimals, percents, geometric formulas and signed numbers. Not applicable to associate degree. Grade: Pass/No Pass. Open Entry/Open Exit.

**Mathematics N48
Pre-Algebra/Algebra Basics**

Unit(s): 4.0
Class Hours: 64 Lecture total.

Prerequisite: Mathematics N06 or placement into Mathematics N48 on the Mathematics Level 1 placement exam and a course equivalent to Mathematics N06.

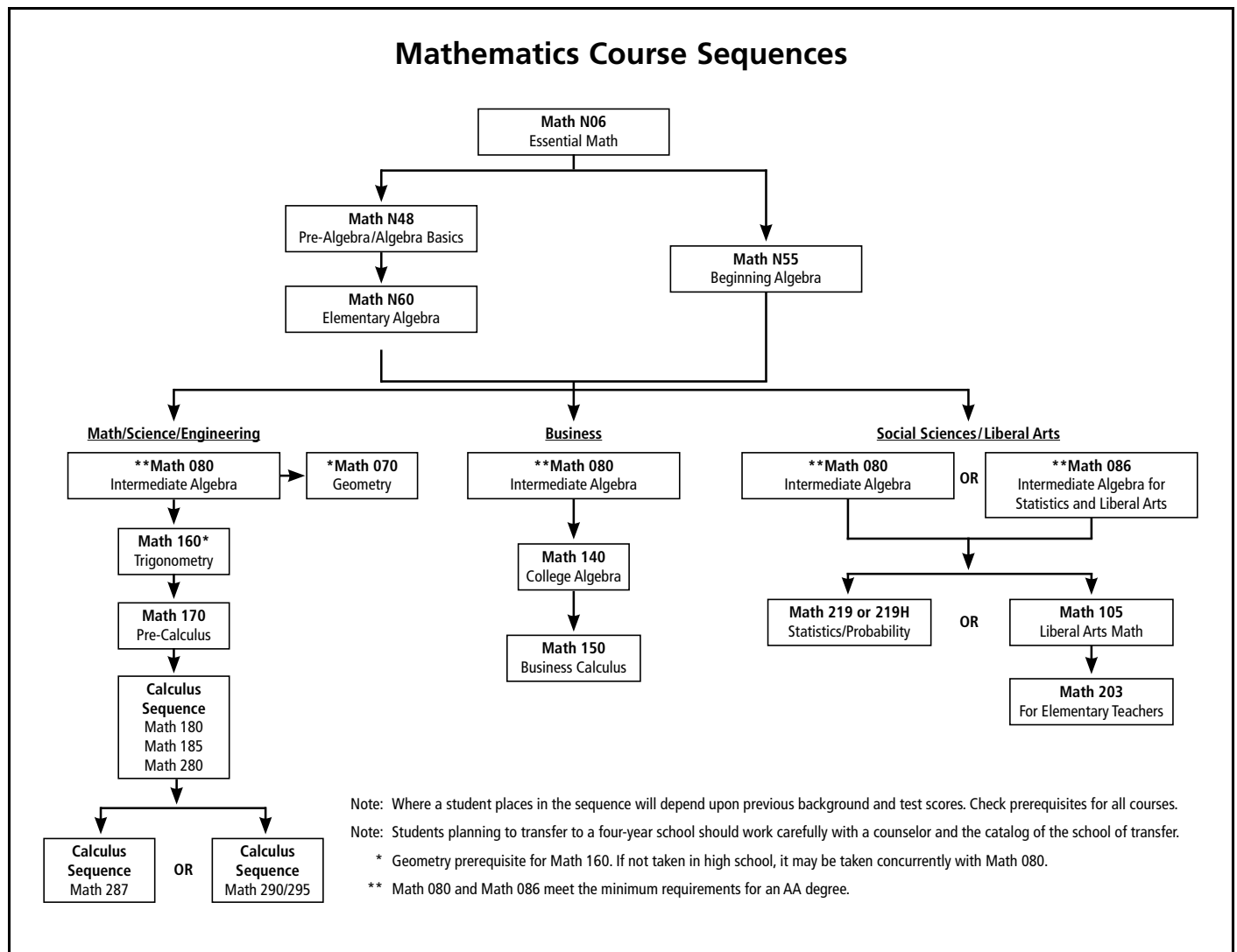
For students who have little or no previous algebra experience. This course offers an introduction to basic algebra concepts, math vocabulary, algebraic operations. This course is intended to be a bridge from basic arithmetic to elementary algebra. Not applicable to associate degree.

**Mathematics N48L
Pre-Algebra/Algebra Basics Math Lab**

Unit(s): 0.2
Class Hours: 10 Laboratory total.

Corequisite: Mathematics N48.

Students in Mathematics N48L will receive individual and/or group instruction. The course is designed to review, enhance and/or advance the students' mathematical knowledge based on their individual need in pre-algebra/algebra basics. Grade: Pass/No Pass. Open Entry/Open Exit.



*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Mathematics N55 Beginning Algebra

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Prerequisite: Mathematics N06 or placement into Mathematics N55 on the Mathematics Level 1 placement exam and a course equivalent to Mathematics N06.

A first course in algebra which includes basic algebra concepts, math vocabulary, algebraic operations, solutions and applications of first and second-degree equations, geometric concepts, graphs, inequalities, exponents, polynomials, and rational expressions and equations.

Mathematics N55L Beginning Algebra Math Lab

Unit(s): 0.2

Class Hours: 10 Laboratory total.

Corequisite: Mathematics N55.

Students in Mathematics N55L will receive individual and/or group instruction. The course is designed to review, enhance and/or advance students' knowledge of mathematics based on their individual need in beginning algebra. Grade: Pass/No Pass. Open Entry/Open Exit.

Mathematics N60 Elementary Algebra

Unit(s): 4.0

Class Hours: 64 Lecture total.

Prerequisite: Mathematics N48 or placement into Mathematics N60 on the Mathematics Level 1 or 2 placement exam and a course equivalent to Mathematics N48.

A first course in algebra which includes solutions and applications of first and second-degree equations, geometric concepts, graphs, inequalities, exponents, polynomials, and algebraic fractions.

Mathematics N60L Elementary Algebra Math Lab

Unit(s): 0.2

Class Hours: 10 Laboratory total.

Corequisite: Mathematics N60.

Students in Mathematics N60L will receive individual and/or group instruction. The course is designed to review, enhance and/or advance students' knowledge of mathematics based on their individual need in elementary algebra. Grade: Pass/No Pass. Open Entry/Open Exit.

Mathematics N73L Math Review

Unit(s): 0.2

Class Hours: 10 Laboratory total.

Students requiring specific math knowledge in courses outside the math department (such as water science, surveying, physics, accounting, etc.) will receive individual instruction of mathematical topics based on their individual need. Not applicable to associate degree. Grade: Pass/No Pass. Open Entry/Open Exit.

Mathematics 030 Coping with Math Anxiety

Unit(s): 1.0

Class Hours: 16 Lecture total.

Covers the concept of math anxiety, what causes it, and how to overcome it. Includes review and practice of basic math skills. Grade: Pass/No Pass.

Mathematics 030L Coping with Math Anxiety Math Lab

Unit(s): 0.2

Class Hours: 10 Laboratory total.

Corequisite: Mathematics 030.

Students in Mathematics 030L will receive individual and/or group instruction. The course is designed to review, enhance and/or advance the students' mathematical knowledge based on their individual need in coping with math anxiety. Grade: Pass/No Pass. Open Entry/Open Exit.

Mathematics 070 Geometry

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: Mathematics N55, N60 or placement into Mathematics 070 on the Mathematics Level 2 placement exam and a course equivalent to Mathematics N60.

Basic Euclidean geometry including concepts of lines, parallel lines, planes, congruences, proofs, similarity, triangles, areas and volumes.

Mathematics 070L Geometry Math Lab

Unit(s): 0.2

Class Hours: 10 Laboratory total.

Corequisite: Mathematics 070.

Students in Mathematics 070L will receive individual and/or group instruction. The course is designed to review, enhance and/or advance the students' mathematical knowledge based on their individual need in geometry. Grade: Pass/No Pass. Open Entry/Open Exit.

Mathematics 080 Intermediate Algebra

Unit(s): 4.0

Class Hours: 80 Lecture total.

Prerequisite: Mathematics N60 or placement into Mathematics 080 on the Mathematics level 2 placement exam and a course equivalent to Mathematics 060.

A second course in algebra that includes systems of equations, inequalities, graphs and functions; radicals, quadratic polynomials, rational expressions; exponential and logarithmic functions, problem solving.

Mathematics 080L Intermediate Algebra Math Lab

Unit(s): 0.2

Class Hours: 10 Laboratory total.

Corequisite: Mathematics 080.

Students in Mathematics 080L will receive individual and/or group instruction. The course is designed to review, enhance and/or advance the students' mathematical knowledge based on their individual need in intermediate algebra. Grade: Pass/No Pass. Open Entry/Open Exit.

Mathematics 086 Intermediate Algebra for Statistics and Liberal Arts

Unit(s): 4.0

Class Hours: 64 Lecture total.

Prerequisite: Mathematics N55, N60 or placement into Mathematics 086 on the Mathematics level 2 placement exam and a course equivalent to Mathematics N55 or N60.

An intermediate algebra course for students who are planning to take Statistics or Math for Liberal Arts Students. Topics include equations, inequalities, graphs and functions, radicals, quadratics, polynomials, rational expressions and equations, exponential and logarithmic functions, data analysis, and probability. Emphasis will be on modeling and solving applications. This course meets the prerequisites for Math 105 and Math 219 but not for Math 140 or 160.



Mathematics 086L
Intermediate Algebra for Statistics and Liberal Arts Math Lab

Unit(s): 0.2
 Class Hours: 10 Laboratory total.
 Corequisite: Mathematics 086.

Students in Mathematics 086L will receive individual and/or group instruction. The course is designed to review, enhance and/or advance the students' mathematical knowledge based on their individual need in intermediate algebra for statistics and liberal arts. Grade: Pass/No Pass. Open Entry/Open Exit.

Mathematics 105
Mathematics for Liberal Arts Students

Unit(s): 3.0
 Class Hours: 64 Lecture total.
 Prerequisite: Mathematics 080 or equivalent skills as measured by the Mathematics Level 3 Exam and a course equivalent to Mathematics 080.

An overview of mathematics for the liberal arts student. Topics will include problem solving, financial management, probability, statistics, and selected other topics such as set theory, geometry, logic, mathematical modeling, and the history of mathematics. *CSU/UC*

Mathematics 105L
Mathematics for Liberal Arts Students Math Lab

Unit(s): 0.2
 Class Hours: 10 Laboratory total.
 Corequisite: Mathematics 105.

Students in Mathematics 105L will receive individual and/or group instruction. The course is designed to review, enhance and/or advance the students' mathematical knowledge based on their individual need in an overview of mathematics for the liberal arts. Grade: Pass/No Pass. Open Entry/Open Exit. *CSU*

Mathematics 140
College Algebra

Unit(s): 4.0
 Class Hours: 64 Lecture total.
 Prerequisite: Mathematics 080 or equivalent skills as measured by the Mathematics Level 3 Exam and a course equivalent to Mathematics 080.

Survey of advanced topics in algebra: equations, inequalities and functions involving polynomials, rationals, exponentials, and logarithms with applications and graphing; sequences and series. *CSU/UC*

Mathematics 140L
College Algebra Math Lab

Unit(s): 0.2
 Class Hours: 10 Laboratory total.
 Corequisite: Mathematics 140.

Students in Mathematics 140L will receive individual and/or group instruction. The course is designed to review, enhance and/or advance the students' mathematical knowledge based on their individual need in college algebra. Grade: Pass/No Pass. Open Entry/Open Exit. *CSU*

Mathematics 150
Calculus for Biological, Management and Social Sciences

Unit(s): 4.0
 Class Hours: 80 Lecture total.
 Prerequisite: Mathematics 140 or placement into Mathematics 150 on the Mathematics Level 3 placement exam and a course equivalent to Mathematics 140.

Single and multi-variable calculus including limits, derivatives, integrals, exponentials and logarithmic functions and partial derivatives. Applications are drawn from Biology, Social Science and Business. *CSU/UC (C-ID)*

Mathematics 150L
Calculus for Biological, Management and Social Sciences Math Lab

Unit(s): 0.2
 Class Hours: 10 Laboratory total.
 Corequisite: Mathematics 150.

Students in Mathematics 150L will receive individual and/or group instruction. The course is designed to review, enhance and/or advance the students' mathematical knowledge based on their individual need in calculus for biological, management and social sciences. Grade: Pass/No Pass. Open Entry/Open Exit. *CSU*

Mathematics 160
Trigonometry

Unit(s): 4.0
 Class Hours: 64 Lecture total.
 Prerequisite: Mathematics 070 and 080 or placement in Mathematics 160 with the Math Level 3 exam and courses equivalent to Mathematics 070 and 080.

Angles and their measurement, trigonometric functions and their applications, including vector problems. Use of trigonometric identities. Graphing the basic functions and variations, solving trigonometric equations. Graphing using polar coordinates, and use of complex numbers. *CSU*

Mathematics 160L
Trigonometry Math Lab

Unit(s): 0.2
 Class Hours: 10 Laboratory total.
 Corequisite: Mathematics 160.

Students in Mathematics 160L will receive individual and/or group instruction. The course is designed to review, enhance and/or advance the students' mathematical knowledge based on their individual need in trigonometry. Grade: Pass/No Pass. Open Entry/Open Exit. *CSU*

Mathematics 170
Pre-Calculus Mathematics

Unit(s): 4.0
 Class Hours: 80 Lecture total.
 Prerequisite: Mathematics 160 or equivalent skills as measured by the Mathematics Level 4 Exam and a course equivalent to Mathematics 160.

Advanced algebraic topics. Study of rational, trigonometric, exponential and logarithmic functions, polar coordinates, and analytic geometry. Preparation for Mathematics 180. *CSU/UC*

Mathematics 170L
Pre-Calculus Mathematics Math Lab

Unit(s): 0.2
 Class Hours: 10 Laboratory total.
 Corequisite: Mathematics 170.

Students in Mathematics 170L will receive individual and/or group instruction. The course is designed to review, enhance and/or advance the students' mathematical knowledge based on their individual need in pre-calculus mathematics. Grade: Pass/No Pass. Open Entry/Open Exit. *CSU*

Mathematics 180
Single Variable Calculus I
(Formerly: Mathematics 180, Analytic Geometry and Calculus)

Unit(s): 4.0
 Class Hours: 64 Lecture total.
 Prerequisite: Mathematics 170 or equivalent skills as measured by Mathematics Level 4 Exam and a course equivalent to Mathematics 170.

Limits and continuity, derivatives and integrals of algebraic, trigonometric, and other transcendental functions. Applications including extrema tests, related rates and areas. *CSU/UC (C-ID)*



Mathematics 180H
Honors Single Variable Calculus I
 (Formerly: Mathematics 180H, Honors Analytic Geometry and Calculus)

Unit(s): 4.0
 Class Hours: 64 Lecture total.
 Prerequisite: Mathematics 170 or equivalent skills as measured by Mathematics Level 4 Exam and a course equivalent to Mathematics 170 and a high school or college GPA of 3.0 or above.

An in-depth honors level study of limits and continuity, derivatives and integrals of algebraic, trigonometric, and transcendental functions with the emphasis on theory and challenging problems. Applications include extrema tests, related rates and areas. **CSU/UC (C-ID)**

Mathematics 180L
Single Variable Calculus I Math Lab
 (Formerly: Mathematics 180L, Analytic Geometry and Calculus Math Lab)

Unit(s): 0.2
 Class Hours: 10 Laboratory total.
 Corequisite: Mathematics 180/180H.

Students in Mathematics 180L will receive individual and/or group instruction. The course is designed to review, enhance and/or advance the students' mathematical knowledge based on their individual need in analytic geometry and calculus. Grade: Pass/No Pass. Open Entry/Open Exit. **CSU**

Mathematics 185
Single Variable Calculus II
 (Formerly: Mathematics 185, Analytic Geometry and Calculus)

Unit(s): 4.0
 Class Hours: 64 Lecture total.
 Prerequisite: Mathematics 180/180H.

Applications of integrals, including volumes, work, arc length, and surface area. Integration techniques, differential equations, conics, parametric equations, polar coordinates, improper integrals, sequences and infinite series. **CSU/UC (C-ID)**

Mathematics 185L
Single Variable Calculus II Math Lab
 (Formerly: Mathematics 185L, Analytic Geometry and Calculus Math Lab)

Unit(s): 0.2
 Class Hours: 10 Laboratory total.
 Corequisite: Mathematics 185.

Students in Mathematics 185L will receive individual and/or group instruction. The course is designed to review, enhance and/or advance the students' mathematical knowledge based on their individual need in analytic geometry and calculus, beyond the level of Mathematics 180. Grade: Pass/No Pass. Open Entry/Open Exit. **CSU**

Mathematics 199
Mathematics Independent Study

Unit(s): 1.0
 Class Hours: 16 Lecture total.
 Prerequisite: Mathematics 080.
 Corequisite: Enrollment in at least one other class at either Santa Ana College or Santiago Canyon College and must show evidence of competence in their academic major and the area in which they propose to do independent study.

Students can increase their knowledge in particular areas of mathematics through individual study and/or in small groups under the direction of a mathematics professor. Science, Technology, Engineering and Mathematics (STEM) majors and future teachers are encouraged to enroll in independent study for mathematics. Divisional approval required. Grade: Pass/No Pass. **CSU**

Mathematics 203
Fundamental Concepts of Elementary Mathematics

Unit(s): 4.0
 Class Hours: 64 Lecture total.
 Prerequisite: Mathematics 105, 140, 170, 219/219H or Social Science 219/219H.

This course emphasizes problem solving techniques and mathematical structure associated with numeration, set theory, elementary number theory, the real number system, ratio, proportion and patterns. Designed for prospective elementary teachers, this course includes activity-based explorations implementing the common core state curriculum standards. **CSU/UC**

Mathematics 203L
Fundamental Concepts of Elementary Mathematics Math Lab

Unit(s): 0.2
 Class Hours: 10 Laboratory total.
 Corequisite: Mathematics 203.

Students in Mathematics 203L will receive individual and/or group instruction. The course is designed to review, enhance and/or advance the students' mathematical knowledge based on their individual need in the fundamental concepts of elementary mathematics. Grade: Pass/No Pass. Open Entry/Open Exit. **CSU**

Mathematics 219
Statistics and Probability

Unit(s): 4.0
 Class Hours: 80 Lecture total.
 Prerequisite: Mathematics 080 or placement into Mathematics 219 on the Mathematics Level 3 placement exam and a course equivalent to Mathematics 080.

First course in statistical reasoning. Includes descriptive statistics, graphical displays of data, probability and sampling distributions, confidence intervals, hypothesis testing, regression, contingency tables, ANOVA, and non-parametric statistics. Includes use of technology. (Same as Social Science 219.) **CSU/UC (C-ID)**

Mathematics 219H
Honors Statistics and Probability

Unit(s): 4.0
 Class Hours: 80 Lecture total.
 Prerequisite: Mathematics 080 or placement into Mathematics 219 on the Mathematics Level 3 placement exam and a course equivalent to Mathematics 080 and a high school or college GPA of 3.0 or above.

This course is an enhanced format for the first course in statistics and probability by using a seminar approach, applying statistical software and presenting individual research. This course includes descriptive statistics, graphical displays of data, probability and sampling distributions, confidence intervals, hypothesis testing, regression, contingency tables, ANOVA and non-parametric statistics, with applications designed around the individual interests of students. (Same as Social Science 219H.) **CSU/UC (C-ID)**

Mathematics 219L
Statistics and Probability Math Lab

Unit(s): 0.2
 Class Hours: 10 Laboratory total.
 Corequisite: Mathematics 219/219H.

Students in Mathematics 219L will receive individual and/or group instruction. The course is designed to review, enhance and/or advance the students' mathematical knowledge based on their individual need in statistics and probability. Grade: Pass/No Pass. Open Entry/Open Exit. **CSU**



Mathematics 280
Intermediate Calculus

Unit(s): 4.0
Class Hours: 64 Lecture total.
Prerequisite: Mathematics 185.

Vectors and three-dimensional space, functions of several variables, partial derivatives and multiple integrals. Vector calculus, Green's Theorem, Stoke's Theorem, and the Divergence Theorem. **CSU/UC**

Mathematics 280L
Intermediate Calculus Math Lab

Unit(s): 0.2
Class Hours: 10 Laboratory total.
Corequisite: Mathematics 280.

Students in Mathematics 280L will receive individual and/or group instruction. The course is designed to review, enhance and/or advance the students' mathematical knowledge based on their individual need in intermediate calculus. Grade: Pass/No Pass. Open Entry/Open Exit. **CSU**

Mathematics 287
Introduction to Linear Algebra and Differential Equations

Unit(s): 5.0
Class Hours: 80 Lecture total.
Prerequisite: Mathematics 280.

Topics include matrices, determinants, vector spaces, linear systems of equations, linear product spaces, first and second order differential equations, systems of differential equations, and the Laplace transform. **CSU/UC**

Mathematics 287L
Introduction to Linear Algebra and Differential Equations Math Lab

Unit(s): 0.2
Class Hours: 10 Laboratory total.
Corequisite: Mathematics 287.

Students in Mathematics 287L will receive individual and/or group instruction. The course is designed to review, enhance and/or advance the students' mathematical knowledge based on their individual need in the introduction to linear algebra and differential equations. Grade: Pass/No Pass. Open Entry/Open Exit. **CSU**

Mathematics 290
Linear Algebra

Unit(s): 3.0
Class Hours: 48 Lecture total.
Prerequisite: Mathematics 185.
Recommended Preparation: Mathematics 280 or concurrent enrollment.

Systems of linear equations, matrix algebra, matrix theory, determinants, vector spaces, inner products, orthogonality, eigenvalues, eigenvectors, linear transformations, applications, and proofs of elementary properties of linear algebra. **CSU/UC (C-ID)**

Mathematics 290L
Linear Algebra Math Lab

Unit(s): 0.2
Class Hours: 10 Laboratory total.
Corequisite: Mathematics 290.

Students in Mathematics 290L will receive individual and/or group instruction. The course is designed to review, enhance and/or advance the students' mathematical knowledge based on their individual need in linear algebra. Grade: Pass/No Pass. Open Entry/Open Exit. **CSU**

Mathematics 295
Differential Equations

Unit(s): 3.0
Class Hours: 48 Lecture total.
Prerequisite: Mathematics 280.

Introduction to ordinary differential equations including both quantitative and qualitative methods as well as applications from a variety of disciplines. Introduces the theoretical aspects of differential equations, including establishing when solution(s) exist, and techniques for obtaining solutions including series solutions, singular points, Laplace transforms and linear systems. **CSU/UC (C-ID)**

Mathematics 295L
Differential Equations Math Lab

Unit(s): 0.2
Class Hours: 10 Laboratory total.
Corequisite: Mathematics 295.

Students in Mathematics 295L will receive individual and/or group instruction. The course is designed to review, enhance and/or advance the students' mathematical knowledge based on their individual need in differential equations. Grade: Pass/No Pass. Open Entry/Open Exit. **CSU**



MODERN LANGUAGES

Division of Arts, Humanities and Social Sciences

Dean: Marilyn Flores

Department Chair, Modern Languages: Elizabeth Baez

Faculty: Elizabeth Baez, Lourdes Fajardo

Associate of Arts

Modern Languages (11925)

The Associate of Arts degree in Modern Languages is designed to meet the needs of both the student who wishes to transfer to a four-year institution and the student who wishes to achieve basic conversational ability in the language. Completion of the associate of arts degree prepares students to transfer to a four-year institution leading to a baccalaureate degree and to possible careers requiring proficiency in multiple languages.

The associate degree in modern languages requires the following:

- 1) Completion of a minimum of 21 units total
- 2) Completion of a minimum of 13 units in any one language including the courses numbered 201 and 202.
- 3) Completion of 5 units in a second language.
- 4) Completion of a minimum of 3 units of restricted electives

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Demonstrate understanding of the cultural perspectives and mores of target language speakers through the synthesis, analysis and evaluation of the target language to derive meaning of implicit and explicit written material and spoken messages in authentic cultural context.
- Demonstrate understanding of the cultural perspectives and mores of target language speakers through the analysis and application of grammatical structures, appropriate vocabulary, idiomatic expressions to communicate orally and in writing in the target language in culturally appropriate ways.

Emphasis requirements*	Units
Courses in one of the languages listed below	13
Course(s) in a second language from the list below	5
Restricted Electives	3-5

French Courses

French 101, Elementary French I (5)
 French 102, Elementary French II (5)
 French 194, Conversation and Composition I (3)
 French 196, Conversation and Composition II (3)
 French 201, Intermediate French I (5)
 French 202, Intermediate French II (5)

Italian Courses

Italian 101, Elementary Italian I (5)
 Italian 102, Elementary Italian II (5)
 Italian 194, Conversation and Composition (3)
 Italian 195, Advance Conversational Italian (3)
 Italian 201, Intermediate Italian I (5)
 Italian 202, Intermediate Italian II (5)

Spanish Courses

Spanish 101/101H, Elementary Spanish I (5)
 Spanish 101A, Elementary Spanish IA (2.5)
 AND
 Spanish 101B, Elementary Spanish IB (2.5)
 Spanish 102/102H, Elementary Spanish II (5)
 Spanish 194, Beginning Conversational Spanish (3)
 Spanish 195A, Advanced Conversational Spanish (3)
 Spanish 195B, Advanced Conversational Spanish (3)
 Spanish 201, Intermediate Spanish I (5)
 Spanish 202, Intermediate Spanish II (5)
 Spanish 213, College Spanish Composition (3)

Restricted Electives:

Any course listed above in a third language (3-5)
 Anthropology 100/100H Introduction to Cultural Anthropology (3)
 Art 101, Survey of Western Art History I:
 Prehistory Through the Middle Ages (3)
 Art 102, Survey of Western Art History II:
 Renaissance Through the Twentieth Century (3)
 Chinese 101, Elementary Chinese I (5)
 Chinese 102, Elementary Chinese II (5)
 Communication 100/100H, Introduction to
 Interpersonal Communication (3)
 English 102/102H, Literature and Composition (4)
 English 271, Survey of World Literature I (3)
 English 272, Survey of World Literature II (3)
 Geography 100/100H, World Regional Geography (3)
 History 101/101H, World Civilizations to the 16th Century (3)
 History 102/102H, World Civilizations Since the 16th Century (3)
 History 124, Mexican-American History in the United States (3)
 Political Science 101/101H, Introduction to American Government (3)
 Political Science 220, International Politics (3)

TOTAL 21-23



MUSIC (MUS)

Division of Arts, Humanities and Social Sciences

Dean: Marilyn Flores

Department Chair, Performing Arts: Binh Vu

Courses

Music 061

Basic Piano Skills

Unit(s): 1.0

Class Hours: 16 Lecture total, 16 Laboratory total.

Group instruction for beginners emphasizing note reading, basic keyboard skills, and sight reading. Practice outside of class required. Practice pianos available on campus. Grade: Pass/No Pass. A combination of Music 061, 161, 162, 163, 164A and 164B may be taken a maximum of four enrollments.

Music 101

Music Appreciation

Unit(s): 3.0

Class Hours: 48 Lecture total.

Designed to increase awareness and appreciation of music from the European classical tradition in relation to general culture and history. Develops basic understanding of musical elements and deepens students' experience of music. Recommended for non music majors. **CSU/UC (C-ID)**

Music 101H

Honors Music Appreciation

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: A high school or college GPA of 3.0 or above.

An enriched approach designed for honors students. The European classical music tradition through study of musical elements, stylistic features, culture and history. Readings, guided listening assignments, required concert attendance and special projects. Recommended for non-music majors. **CSU/UC (C-ID)**

Music 102

World Music

Unit(s): 3.0

Class Hours: 48 Lecture total.

Music from the Far East, Southeast Asia, Africa, the Middle East, Europe and the Americas. Students are guided to enjoy and to understand music from diverse cultures. Investigation of the interconnections of cultural aesthetics and musical styles. Concert attendance and assigned listening required. **CSU/UC**

Music 103

Jazz in America

Unit(s): 3.0

Class Hours: 48 Lecture total.

A historical survey of the development and evolution of jazz in America from its earliest roots in African and European music. The study will also include the social and economic conditions which influenced this art form. **CSU/UC**

Music 104

Rock Music History and Appreciation

Unit(s): 3.0

Class Hours: 48 Lecture total.

Historical survey of rock music from its beginning in the '50s to the present. All Rock and Pop styles will be discussed. Personalities and musical styles will be related to the sociology of the time period being studied. Field trips are required. **CSU/UC**

Music 121

Beginning Voice

Unit(s): 1.0

Class Hours: 16 Lecture total, 16 Laboratory total.

Group instruction designed to develop basic principles of solo and choral voice production, diction, breath control and posture. Practice outside of class required. Recommended for non music majors and for music majors not studying privately. Field trips are required. A combination of Music 121, 122, 123 and 124 may be taken a maximum of four enrollments. **CSU/UC**

Music 122

Intermediate Voice

Unit(s): 1.0

Class Hours: 16 Lecture total, 16 Laboratory total.

Prerequisite: Music 121.

Group instruction designed to develop intermediate principles of solo and choral voice production, diction, breath control and posture. Vocal analysis of each student emphasized. Practice outside of class required. Song literature matched to student level II. Designed for both music majors and non music majors. Field trips are required. A combination of Music 121, 122, 123 and 124 may be taken a maximum of four enrollments. **CSU/UC**

Music 123

Advanced Voice

Unit(s): 1.0

Class Hours: 16 Lecture total, 16 Laboratory total.

Prerequisite: Music 122.

Advanced principles of solo and choral vocal production. Vocal exercises and song literature in English and other languages included. Practice outside of class required. Recommended for non music majors and for music majors not studying privately. Field trips are required. A combination of Music 121, 122, 123 and 124 may be taken a maximum of four enrollments. **CSU/UC**

Music 124

Advanced Vocal Production and Repertoire

Unit(s): 1.0

Class Hours: 16 Lecture total, 16 Laboratory total.

Prerequisite: Music 123.

Continuation of group instruction for students who have completed three semesters of voice and can perform at an advanced level. Further develops advanced vocal and choral production in a variety of styles and techniques. Instruction includes advanced English and foreign language song literature. Practice outside of class required. Designed for both music majors and non music majors. Field trips are required. A combination of Music 121, 122, 123 and 124 may be taken a maximum of four enrollments. **CSU/UC**

Music 126

Collegiate Choir

Unit(s): 1.0

Class Hours: 48 Laboratory total.

Recommended Preparation: Students should be able to repeat musical phrases given to him/her from musical instrument or from vocal singing.

Mixed chorus for general interest singers. Rehearses and performs a variety of music, including classical, folk tunes, and songs from Broadway musicals. Each semester requires performance of a variety of new repertoire. Field trips are required. May be repeated. **CSU/UC**



Music 127 Concert Chorale

Unit(s): 1.0

Class Hours: 48 Laboratory total.

Recommended Preparation: Some music reading ability is recommended. Students should have one or two semesters of vocal technique class (Music 121, 122 or 123).

Rehearsal and performance of standard and current choral classic repertoire (Renaissance, Baroque, Classical, Romantic and Contemporary). Designed to train students in mixed ensemble singing. Public performance emphasized. Each semester requires performance of a variety of new and different repertoire. Designed for students who have basic singing skills. Field trips required. May be repeated. **CSU/UC**

Music 128 Masterworks Chorale

Unit(s): 1.0

Class Hours: 48 Laboratory total.

Recommended Preparation: Some music reading ability is recommended. Students should have one or two semesters of vocal technique class (Music 121, 122 or 123).

Rehearsal and performance of standard and current masterworks repertoire. Designed to train students in oratorio ensemble singing. Public performance emphasized. Each semester requires performance of a variety of new and different repertoire. Designed for students who have basic singing skills. Field trips are required. May be repeated. **CSU/UC**

Music 129 Chamber Choir

Unit(s): 1.0

Class Hours: 64 Laboratory total.

Recommended Preparation: Some music reading ability is recommended. Students should have one or two semesters of vocal technique class (Music 121, 121 or 123).

Rehearsal and performance of chamber choir repertoire from various historical periods. Course designed for festival and concert performance. Each semester requires the performance of new repertoire. Field trips are required. May be repeated. **CSU/UC**

Music 161 Class Piano I

Unit(s): 1.0

Class Hours: 16 Lecture total, 16 Laboratory total.

Group instruction for beginners emphasizing note reading, basic keyboard skills, chord patterns, and sight-reading. Practice outside of class required. Practice pianos available on campus. Required for music majors whose principal instrument is not piano. A combination of Music 061, 161, 162, 163, 164A and 164B may be taken a maximum of four enrollments. **CSU/UC**

Music 162 Class Piano II

Unit(s): 1.0

Class Hours: 16 Lecture total, 16 Laboratory total.

Prerequisite: Music 061 or 161.

Group instruction for those possessing basic piano skills but still classified as beginners. Emphasizes note reading, keyboard technique, chord patterns, sight-reading. Daily practice required. Practice pianos available on campus. Required for music majors whose principal instrument is not piano. A combination of Music 061, 161, 162, 163, 164A and 164B may be taken a maximum of four enrollments. **CSU/UC**

Music 163 Class Piano III

Unit(s): 1.0

Class Hours: 16 Lecture total, 16 Laboratory total.

Prerequisite: Music 162.

Instruction for students who have completed two semesters of piano and are ready for the intermediate level. Emphasizes building technique, sight-reading, and performance. Daily practice required. Practice pianos available on campus. A combination of Music 061, 161, 162, 163, 164A and 164B may be taken a maximum of four enrollments. **CSU/UC**

Music 164A Intermediate Piano Repertoire I

Unit(s): 1.0

Class Hours: 8 Lecture total, 24 Laboratory total.

Prerequisite: Music 163.

Instruction for intermediate level students. Emphasizes solo material, technique, sight-reading, interpretation, and performance. Daily practice required. Practice pianos available on campus. A combination of Music 061, 161, 162, 163, 164A and 164B may be taken a maximum of four enrollments. **CSU/UC**

Music 164B Intermediate Piano Repertoire II

Unit(s): 1.0

Class Hours: 8 Lecture total, 24 Laboratory total.

Prerequisite: Music 164A.

Continuation of instruction for advanced intermediate level students. Emphasizes solo material, technique, sight-reading, and performance. Daily practice required. Practice pianos available on campus. A combination of Music 061, 161, 162, 163, 164A and 164B may be taken a maximum of four enrollments. **CSU/UC**

Music 182 Musical Ensemble

Unit(s): 1.0

Class Hours: 48 Laboratory total.

Prerequisite: Audition.

Study and performance of standard and contemporary music literature. Public concerts on campus and in community each semester. Concert tour/performance field trips may be required. May be repeated. **CSU/UC**

Music 185 Beginning Classical Guitar

Unit(s): 1.0

Class Hours: 16 Lecture total, 16 Laboratory total.

Basic instruction in guitar technique and music nomenclature as related to performance of entry level solo and ensemble repertoire. Student must furnish nylon string guitar. A combination of Music 185, 186, 187 and 188 may be taken a maximum of four enrollments. **CSU/UC**

Music 186 Intermediate Classical Guitar

Unit(s): 1.0

Class Hours: 16 Lecture total, 16 Laboratory total.

Prerequisite: Music 185.

Intermediate instruction in solo, duo and trio repertoire. Emphasizes technique studies and performance styles of 18th century music. Student must provide nylon string guitar. A combination of Music 185, 186, 187 and 188 may be taken a maximum of four enrollments. **CSU/UC**



Music 187

Advanced Classical Guitar

Unit(s): 1.0

Class Hours: 8 Lecture total, 24 Laboratory total.

Prerequisite: Music 186.

Instruction at the advanced level in solo, duo and trio repertoire.

Emphasizes advanced technical studies and etudes and performance styles of 16th through 20th century music. Student must provide nylon string guitar. A combination of Music 185, 186, 187 and 188 may be taken a maximum of four enrollments. **CSU/UC**

Music 188

Advanced Classical Guitar Technique and Repertoire

Unit(s): 1.0

Class Hours: 8 Lecture total, 24 Laboratory total.

Prerequisite: Music 187.

Further develops advanced technique and solo performance through study of Renaissance, Baroque, and Classic ornamentation and various performance styles of 16th through 20th century music. Student must provide nylon string guitar. A combination of Music 185, 186, 187 and 188 may be taken a maximum of four enrollments. **CSU/UC**

NUTRITION & FOOD (NUTR)

Division of Mathematics and Sciences

Dean: Martin Stringer

Department Co-Chairs, Kinesiology: Lisa Camarco, Ian Woodhead

Courses

Nutrition & Food 115

Nutrition

Unit(s): 3.0

Class Hours: 48 Lecture total.

A study of scientific concepts of nutrition relating to the functioning of nutrients in the basic life process. Emphasis is on individual needs, food sources of nutrients, current nutrition issues and diet analysis. **CSU/UC**

Nutrition & Food 120

Food and Culture

Unit(s): 3.0

Class Hours: 48 Lecture total.

A multi-cultural perspective on traditional and contemporary food choices. The class considers customs associated with food in relation to religion, health/medicine, human survival and symbolism. The impact of socio-economics, historical events, population movements, and geography are also discussed. **CSU**



PHILOSOPHY (PHIL)

Division of Arts, Humanities and Social Sciences

Dean: Marilyn Flores

Department Chair, Philosophy: Marcelo Pimentel

Faculty: Douglas Deaver, James Granitto, Marcelo Pimentel

Associate in Arts

Philosophy for Transfer (32042)

The Associate in Arts in Philosophy for Transfer degree prepares students to transfer to a four-year institution leading to a baccalaureate degree. Successful completion of the transfer degree in Philosophy guarantees the student acceptance to the California State University system to pursue a baccalaureate degree. The transfer degree prepares students who plan to teach philosophy, or who plan to study theology or law, and establishes a foundation for graduate studies in the areas of liberal arts, critical theory, international relations, cognitive science and specialized historical studies.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Demonstrate knowledge of the discipline of philosophy.
- Demonstrate an ability to analyze and evaluate topics and problems in a way that comports with philosophic method.

Major requirements*

	Units
Philosophy 106/106H, Introduction to Philosophy OR	3
Philosophy 108, Ethics	4
Philosophy 111, Introductory Logic	3-4
Select one (1) course from the following (List A):	3-4
Philosophy 110/110H, Critical Thinking (4)	
Philosophy 112, World Religions (3)	
Philosophy 118, History of Philosophy (3)	
Select two (2) courses from the following (List B):	6-7
An additional course from List A (3-4) (may not be a course used to satisfy the requirements in List A)	
Philosophy 115, Philosophy of Religion (3)	
Select one (1) course from the following (List C):	3-4
An additional course from List A or B (3-4) (may not be a course used to satisfy the requirements in List A or B)	
Philosophy 120, Introduction to Social and Political Philosophy (3)	
TOTAL	19-20

Associate of Arts

Philosophy (11930)

The Associate of Arts degree in Philosophy prepares students to transfer to a four-year institution leading to a baccalaureate degree. The baccalaureate degree is intended for those students who plan to teach philosophy, or for pre-professional students in such areas as theology and law, and as a foundation for graduate studies in the areas of library science, diplomacy, theoretical physical science and specialized historical studies.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Demonstrate knowledge of the discipline of philosophy.
- Demonstrate an ability to analyze and evaluate topics and problems in a way that comports with philosophic method.

Major requirements*

	Units
Philosophy 106/106H, Introduction to Philosophy	3
Philosophy 108, Ethics	3
Philosophy 110/110H, Critical Thinking OR	4
Philosophy 111, Introductory Logic	3
Philosophy 112, World Religions	3
Philosophy 118, History of Philosophy	6-7
Select six (6) to seven (7) units from the following:	6-7
Art 101, Survey of Western Art History I: Prehistory Through the Middle Ages (3)	
Art 102, Survey of Western Art History II: Renaissance Through the Twentieth Century (3)	
English 271, Survey of World Literature I (3)	
English 272, Survey of World Literature II (3)	
History 101/101H, World Civilizations to the 16th Century (3)	
Library and Information Studies 103, Advanced Internet Research (1)	
Music 101/101H, Music Appreciation (3)	
Psychology 100/100H, Introduction to Psychology (3)	
TOTAL	22-23

Courses

Philosophy 106

Introduction to Philosophy

Unit(s): 3.0

Class Hours: 48 Lecture total.

A survey of historical and contemporary ideas on how to live the good life. **CSU/UC (C-ID)**

Philosophy 106H

Honors Introduction to Philosophy

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: A high school or college GPA of 3.0 or above.

An enriched approach designed for honors students in a seminar setting. A survey of historical and contemporary ideas on how to live the good life. **CSU/UC (C-ID)**

Philosophy 108

Ethics

Unit(s): 3.0

Class Hours: 48 Lecture total.

Introduction to key historical and modern theories of philosophical ethics and the application of these theories to ethical issues facing society today. Assists in clarifying our thinking about morality/ethics. Course increases awareness of values in personal and contemporary issues. **CSU/UC (C-ID)**



Philosophy 110
Critical Thinking

Unit(s): 4.0

Class Hours: 64 Lecture total.

Prerequisite: English 101/101H.

College level critical thinking and writing. Promotes rational self awareness, independent thinking, and improved academic expression. Examines philosophical methods of reasoning and composition, and the uses of informal logic and criticism in personal life, college, work, and democratic society. *CSU/UC*

Philosophy 110H
Honors Critical Thinking

Unit(s): 4.0

Class Hours: 64 Lecture total.

Prerequisite: English 101/101H and a high school or college GPA of 3.0 or above.

An enriched approach designed for honors students in a seminar setting. College-level critical thinking and writing. Promotes self-awareness, independent thinking, and improved academic expression. Examines philosophical methods of reasoning and composition, and the uses of informal logic and criticism in personal life, college, work, and democratic society. *CSU/UC*

Philosophy 111
Introductory Logic

Unit(s): 4.0

Class Hours: 64 Lecture total.

Beginning course in formal and applied logic. Covers cognitive language, formal argument, proof, basic propositional and predicate logic, and philosophy of logic. Emphasizes active student involvement and practical application to college life. *CSU/UC (C-ID)*

Philosophy 112
World Religions

Unit(s): 3.0

Class Hours: 48 Lecture total.

A philosophical overview of the world's great religions. Includes historical origin and growth of each religion, major doctrines, and influence. Religions dealt with include Primitive, Hinduism, Jainism, Buddhism, Taoism, Confucianism, Judaism, Christianity and Islam. *CSU/UC*

Philosophy 115
Philosophy of Religion

Unit(s): 3.0

Class Hours: 48 Lecture total.

An introduction to the philosophical analysis of religious beliefs and concepts, including the nature of religion, the nature and existence of some kind of ultimate reality, the problem of evil, the meaning of religious language, the authenticity of religious experiences, the relation between religion and ethics, the relation between religion and science, and religious diversity. *CSU/UC*

Philosophy 118
History of Philosophy

Unit(s): 3.0

Class Hours: 48 Lecture total.

An introduction to philosophy from a historical perspective: getting acquainted with the thoughts of the world's great philosophers. Provides a survey of the dominant philosophies of the ancient, medieval, and modern worlds. *CSU/UC*

Philosophy 120
Introduction to Social and Political Philosophy

Unit(s): 3.0

Class Hours: 48 Lecture total.

A critical examination of rights theory, liberty, justice, individualism, community, state power, political authority, natural law, property, social contract theory, ideology, obedience, alienation, and various forms of social order (e.g. democracy, totalitarianism, theocracy, socialism) from the perspective of social and political philosophy, including multi-cultural and feminist viewpoints and critiques. *CSU/UC*



PHYSICS (PHYS) & PHYSICAL SCIENCE (PSC)

Division of Mathematics and Sciences

Dean: Martin Stringer

Department Chair, Physics and Engineering: Cynthia Swift

Faculty: Craig Rutan, Cynthia Swift

Associate in Science

Physics for Transfer (31039)

The Associate in Science in Physics for Transfer degree provides a foundation in physics and mathematics for students planning to transfer into a baccalaureate program in physics or physics education. Successful completion of the transfer degree in Physics guarantees the student acceptance to the California State University system to pursue a baccalaureate degree in Physics or a related field.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Perform various scientific experiments and analyze data to check agreement with theoretical predictions.
- Apply appropriate physical laws and mathematical techniques to analyze various physical situations.

Major requirements*

Major requirements*	Units
Physics 250A, Physics for Scientists and Engineers I	5
Physics 250B, Physics for Scientists and Engineers II	5
Physics 250C, Physics for Scientists and Engineers III	5
Mathematics 180/180H, Single Variable Calculus I	4
Mathematics 185, Single Variable Calculus II	4
Mathematics 280, Intermediate Calculus	4
TOTAL	27

It is highly recommended for students to meet with an SCC counselor to discuss other possible courses that are part of major preparation at a local CSU campus. Students are encouraged to take some additional courses, that may be articulated major preparation, prior to transfers such as **Mathematics 287, Mathematics 290, Chemistry 219, and Computer Science 120**. While these additional courses are not required for this degree, completion of these courses will better prepare students for upper-division Physics courses at a CSU.

Physics Courses

Physics 100

Conceptual Physics

(Formerly: Physics 109, Survey of General Physics)

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Recommended Preparation: Mathematics N60.

A conceptual introduction to physics. Topics include: mechanics, fluids, thermodynamics, sound, light, electricity, magnetism, and modern physics. Recommended for all students interested in a conceptual approach to physics or students planning to take more advanced courses in physics. **CSU/UC**

Physics 150A

Introductory Physics I

Unit(s): 4.0

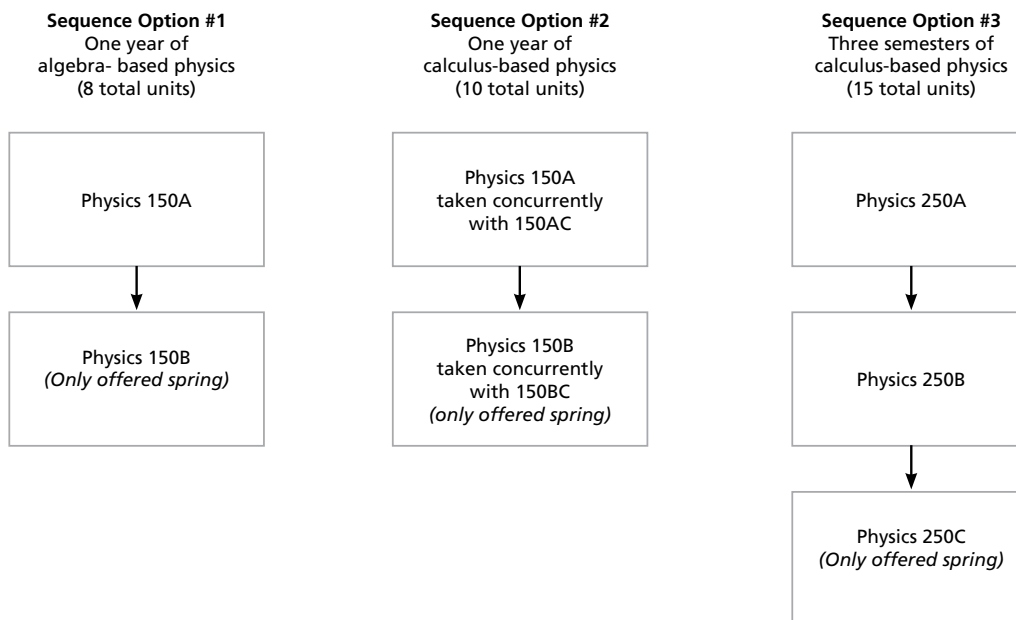
Class Hours: 48 Lecture total, 48 Laboratory total.

Prerequisite: Mathematics 160.

A trigonometry-based physics course. Topics include: mechanics, thermodynamics, fluids, oscillatory motion, and sound. Students that have successfully completed Physics 210 or Physics 279 may not enroll in Physics 150A. **CSU/UC (C-ID)**

PHYSICS COURSE SEQUENCES

A Note to Transfer Students: Most college and universities prefer students complete an entire sequence before transferring to a four-year institution. For students planning to transfer to public universities in California (CSU & UC), please check with assist.org to determine which of the three sequences is required for your school and major. Students planning to transfer to private or out-of-state institutions should check the individual school requirements.



*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Physics 150AC

Introductory Physics I - Calculus

Unit(s): 1.0

Class Hours: 16 Lecture total.

Prerequisite: Mathematics 180/180H.

Corequisite: Physics 150A.

This course expands on the topics covered in Physics 150A by adding the application of calculus to problems in physics. Topics will include motion graphs, motion with non-constant acceleration, variable forces, wave motion, and thermodynamics. **CSU/UC**

Physics 150B

Introductory Physics II

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Prerequisite: Physics 150A.

A trigonometry-based physics course. Topics include: light, electricity, magnetism and modern physics. Students that have successfully completed Physics 211 may not enroll in Physics 150B. **CSU/UC (C-ID)**

Physics 150BC

Introductory Physics II - Calculus

Unit(s): 1.0

Class Hours: 16 Lecture total.

Prerequisite: Physics 150A and 150AC

Corequisite: Physics 150B.

This course expands on the topics covered in Physics 150B by adding the application of calculus to problems in physics. Topics will include electric fields, Gauss' Law, Ampere's Law, Faraday's Law, light, and quantum mechanics. **CSU/UC**

Physics 250A

Physics for Scientists and Engineers I

Unit(s): 5.0

Class Hours: 64 Lecture total, 48 Laboratory total.

Prerequisite: Mathematics 180/180H

Recommended Preparation: Physics 100 or High School Physics.

Principles of classical mechanics including particle dynamics, forces, work, energy, momentum, rotational motion, equilibrium, harmonic motion, gravity and fluid dynamics. This course is designed for students majoring in physical sciences and engineering. **CSU/UC (C-ID)**

Physics 250B

Physics for Scientists and Engineers II

Unit(s): 5.0

Class Hours: 64 Lecture total, 48 Laboratory total.

Prerequisite: Physics 250A and Mathematics 185.

Introduces the basic principles of thermodynamics, electricity and magnetism. The main topics are the laws of thermodynamics, kinetic theory of gases, electrostatics, circuits, magnetism, electro-magnetic induction, and Maxwell's equations. This course is designed for students majoring in physical sciences and engineering. **CSU/UC (C-ID)**

Physics 250C

Physics for Scientists and Engineers III

Unit(s): 5.0

Class Hours: 64 Lecture total, 48 Laboratory total.

Prerequisite: Physics 250B.

Recommended Preparation: Mathematics 280.

Introduces the basic principles of mechanical waves, sound, light, geometrical and wave optics, special relativity and quantum mechanics. This course is designed for students majoring in physical sciences and engineering. **CSU/UC (C-ID)**

Physical Science Courses

Physical Science 100

Survey of Chemistry and Physics

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Recommended Preparation: Mathematics 080.

An introduction to the basic principles of physics and chemistry including matter, physical and chemical properties, energy, motion, thermodynamics, electricity and magnetism, light, atomic structure, bonding, solutions and chemical reactions. The inter-dependence of chemistry and physics will be emphasized. Designed for non-science majors, concepts are introduced in lab through inquiry and further developed during discussion. **CSU/UC (C-ID)**



POLITICAL SCIENCE (POLT)

Division of Arts, Humanities and Social Sciences

Dean: Marilyn Flores

Department Chair, Political Science: Nooshan Shekarabi,
Faculty: Brenda Carpio, Michael Parrella, Narges Rabii-Rakin,
Nooshan Shekarabi

Associate in Arts

Political Science for Transfer (31730)

The Associate in Arts in Political Science for Transfer degree prepares students to transfer to a four-year institution leading to a baccalaureate degree. Successful completion of the transfer degree in Political Science guarantees the student acceptance to the California State University system to pursue a baccalaureate degree that prepares students for law school, teaching, public relations, journalism, government service on the local, state and national levels, and private employment where government institutions are involved.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Demonstrate critical thinking skills and formulate a thesis in a written and/or oral format.
- Demonstrate a basic knowledge of political institutions and processes of American government.
- Demonstrate how individuals by applying their political science skills can make a difference in their local communities.

Major requirements*

	Units
Political Science 101/101H, Introduction to American Government	3

Students must take the following (List A):

Political Science 201, Introduction to Comparative Politics (3)	9
Political Science 220, International Politics (3)	
Political Science 230, Political Theory (3)	

Select two (2) courses from the following (List B):

Anthropology 100/100H, Introduction to Cultural Anthropology (3)	6
Economics 101, Principles/Micro (3)	
Economics 102, Principles/Macro (3)	
History 101/101H, World Civilizations to the 16th Century (3)	
Political Science 221, Women in American Politics (3)	
Sociology 100/100H, Introduction to Sociology (3)	

TOTAL	18
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Courses

Political Science 101

**Introduction to American Government
(Formerly: Political Science 101, Introduction to
American Governments)**

Unit(s): 3.0

Class Hours: 48 Lecture total.

Study of United States national government and California state and local governments. Satisfies graduation requirement for American institutions and state requirements for California state government. *CSU/UC*

Political Science 101H

Honors Introduction to American Governments

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: A high school or college GPA of 3.0 or above.

A student-oriented exploration of the historical and contemporary principles of American government. Study groups and individual computer-based research focus on basic political concepts of American national and state governments. Satisfies graduation requirement for American Institutions and state requirements for California state government. *CSU/UC (C-ID)*

Political Science 110

Introduction to Political Science

Unit(s): 3.0

Class Hours: 48 Lecture total.

An introduction to political science designed to familiarize students with basic political concepts, political ideologies, political systems, and subfields within political science. *CSU*

Political Science 150

Introduction to Model United Nations

Unit(s): 4.0-6.0

Class Hours: 48-48 Lecture total, 48-144 Laboratory total.

Recommended Preparation: Political Science 101/101H or 220.

An introductory course in the study of the United Nations. The focus will be on the role of the United Nations in world politics in relation to the success and failure of theories of collective security, international disputes resolution, human rights, peacekeeping attempts and technological cooperation. Prepares students for individual and team Model United Nations events for intercollegiate United Nations conferences and competitions. Students are required to attend Model United Nations conferences. May be repeated. *CSU*

Political Science 200

American Political Thought

Unit(s): 3.0

Class Hours: 48 Lecture total.

An inquiry into the major influences that have shaped American political thought. Emphasis is on an historical analysis of political thought contributing to contemporary politics. *CSU/UC*

Political Science 200H

Honors American Political Thought

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: A high school or college GPA of 3.0 or above.

An in depth and intensive exploration of critical issues in American political thought and the influences that have shaped it. Emphasizing student interaction and essay writing in a seminar setting, the course focuses on an historical analysis of political thought contributing to contemporary American politics. *CSU/UC*

Political Science 201

Introduction to Comparative Politics

Unit(s): 3.0

Class Hours: 48 Lecture total.

A study of the histories, political cultures, and governmental arrangements of various nations and regions around the world. Comparative study is made of the 'First World' or industrialized democracies, the 'Second World' or former and current communist countries, and the 'Third World' developing, and 'Fourth World' non-developing countries. *CSU/UC*



**Political Science 220
International Politics**

Unit(s): 3.0
Class Hours: 48 Lecture total.
Introduction to basic principles and issues of international politics. Focus is on concepts of security, power, diplomacy, war, terrorism and globalization. Examines problems of rich versus poor nations in context of the new world order. *CSU/UC (C-ID)*

**Political Science 221
Women in American Politics**

Unit(s): 3.0
Class Hours: 48 Lecture total.
Recommended Preparation: Political Science 101/101H.
A historical and philosophical study of the role women play in the politics of the United States as voters, policy makers, and activists. Attention will be devoted to topics of gender in education and the workplace, the politics of abortion, same sex marriage, and surrogate motherhood. The course will consider how race, class, age, and education affect the politicization of women. *CSU/UC*

**Political Science 222
Survey of Current Issues in American Politics**

Unit(s): 3.0
Class Hours: 48 Lecture total.
Recommended Preparation: Political Science 101/101H.
A survey of current domestic issues as well as international issues involving American politics. Emphasis will be placed on understanding the ideological divisions which underline and inform much of the debates. Policies will be examined historically for their efficacy and moral salience. Arguments and perspectives on all sides of the current debates will be examined. *CSU/UC*

**Political Science 230
Political Theory**

Unit(s): 3.0
Class Hours: 48 Lecture total.
The course will explore the history of political theory from Plato to the present. Such concepts as liberty, equality, power, authority and justice will be examined. *CSU/UC (C-ID)*

**Political Science 250
Advanced Model United Nations**

Unit(s): 4.0-6.0
Class Hours: 48-48 Lecture total, 48-144 Laboratory total.
Prerequisite: Political Science 150.
An advanced course in the study of the United Nations. The focus will be on mentorship of novice members, advanced research, team events training, individual events training and research for intercollegiate United Nations conferences and competitions. Non-Governmental Organizations (NGOs), Intergovernmental Organizations (IGOs), International Criminal Court (ICC), International Court of Justice (ICJ) and various other international bodies are covered. Prepares students for international current event debates, parliamentary debate and conflict resolution. Students are required to attend Model United Nations conferences. May be repeated. *CSU*

PSYCHOLOGY (PSYC)

Division of Arts, Humanities and Social Sciences

Dean: Marilyn Flores
Department Co-Chairs, Psychology: Cari Cannon, Christine Umali Kopp
Faculty: Cari Cannon, Christine Umali Kopp

**Associate in Arts
Psychology for Transfer (31041)**

The Associate in Arts in Psychology for Transfer degree prepares students to transfer to a four-year institution leading to a baccalaureate degree for specialization in any of more than twenty branches of psychology including: child, clinical, personality, vocational, marriage and family counseling, industrial, mental health, and college teaching. Completion of the two-year program is appropriate for students whose vocational plans include helping people, i.e., teaching, social welfare, probation, criminology, nursing, law, and personnel work. Successful completion of the transfer degree in Psychology guarantees the student acceptance to the California State University system to pursue a baccalaureate degree in Psychology or a related field.

Learning Outcome(s)

- Upon successful completion of the major requirements for this degree, students will be able to
- Demonstrate familiarity with the major concepts, theoretical perspectives, empirical findings, and historical trends in psychology.
 - Respect and use critical thinking, skeptical inquiry, and when possible, the scientific approach to solve problems related to behavior and mental processes.
 - Develop insight into their own and others' behavior and mental processes and apply effective strategies for self-management and self-improvement.

Major requirements*	Units
Psychology 100/100H, Introduction to Psychology	3
Psychology 219, Introduction to Research Methods in Psychology	4
Mathematics 219/219H, Statistics and Probability	4
OR	
Social Science 219/219H, Statistics and Probability	4
Select one (1) course from the following (List A):	3
Psychology 200, Introduction to Biological Psychology	
Biology 109/109H, Fundamentals of Biology	
Select one (1) course from the following (List B):	3
An additional course from List A	
(may not be a course used to satisfy the requirements in List A)	
Psychology 157, Introduction to Child Psychology	
OR	
Child Development 107, Child Growth and Development (DS1)	
Psychology 240/Sociology 240, Introduction to Social Psychology	
<i>Students may not earn credit for both Sociology 240 and Psychology 240. Students may not earn credit for both Child Development 107 and Psychology 157.</i>	
Select one (1) course from the following (List C):	3-4
An additional course from List A or B (3)	
(may not be a course used to satisfy the requirements in List A or B)	
Anthropology 100/100H, Introduction to Cultural Anthropology (3)	
Anthropology 101, Introduction to Physical Anthropology (3)	
Philosophy 110/110H, Critical Thinking (4)	
Philosophy 111, Introductory Logic (4)	
Psychology 170, Multicultural Psychology (3)	
Psychology 180, Psychology of Gender (3)	
Psychology 230, Psychology and Effective Behavior (3)	
Psychology 250, Introduction to Abnormal Psychology (3)	
Sociology 100/100H, Introduction to Sociology (3)	
TOTAL	20-21

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Courses

Psychology 100

Introduction to Psychology

(Formerly: Physical Science 115, Concepts in Physical Sciences for Educators)

Unit(s): 3.0

Class Hours: 48 Lecture total.

An introduction to the major theories, methods, concepts, ethical issues, and findings in the major fields in psychology including (but not limited to): research methods, biological bases of behavior, perception, learning, memory, cognition, emotion, motivation, development, personality, social, and abnormal psychology. **CSU/UC (C-ID)**

Psychology 100H

Honors Introduction to Psychology

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: A high school or college GPA of 3.0 or above.

Content-enriched course for honors students emphasizing application and critical analysis of psychological concepts. An introduction to the major theories, methods, concepts, ethical issues, and findings in the major fields in psychology including (but not limited to): research methods, biological bases of behavior, perception, learning, memory, cognition, emotion, motivation, development, personality, social, and abnormal psychology. **CSU/UC**

Psychology 157

Introduction to Child Psychology

Unit(s): 3.0

Class Hours: 48 Lecture total.

Survey of human development from conception through adolescence. Covers major theories of development (cognition, perception, language, personality, etc.) and their application to parenting, teaching, and other interactions with children. (No credit if student has taken Human Development 107.) **CSU/UC**

Psychology 170

Multicultural Psychology

Unit(s): 3.0

Class Hours: 48 Lecture total.

Introduces students to important issues related to cultural diversity in the field of psychology. Major areas of psychology will be explored from a multicultural perspective, including research, mental health, social psychology, and identity development. Exploration of historically underrepresented populations in the U.S. will be emphasized. **CSU/UC**

Psychology 180

Psychology of Gender

Unit(s): 3.0

Class Hours: 48 Lecture total.

This course will introduce students to psychological issues as they relate to different genders. Topics to be covered will include, but will not be limited to, the following: gender identity, gender theories and research, sexual orientation, gender roles, stereotypes, prejudice, and discrimination, as well as gender differences in the workplace, communication, mental health and relationships. Additional focus will be given to the effects of race, ethnicity, socioeconomic status and culture on gender. **CSU**

Psychology 200

Introduction to Biological Psychology

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: Psychology 100/100H.

Explores relationships between physiological structures of the body and human behavior. Focuses on the organization and function of the brain, spinal cord, peripheral nervous system, glands, sensory and perceptual systems. Relates physiological functioning to motivated behavior, addiction, and psychological disorders. **CSU/UC (C-ID)**

Psychology 219

Introduction to Research Methods in Psychology

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Prerequisite: Psychology 100/100H and Social Science 219/219H or

Mathematics 219/219H.

Emphasizes methods of study in psychology including: sound and ethical experimental design, analysis of variables contributing to experimental results, data treatment, and communicating findings. **CSU/UC (C-ID)**

Psychology 230

Psychology and Effective Behavior

Unit(s): 3.0

Class Hours: 48 Lecture total.

Application of theory and research in psychology to deal effectively with the adjustment demands of everyday life. Covers topics such as: interpersonal relationships, stress, health, time-management, and working. Includes exercises for increasing self-awareness, self-motivation, and self-management of everyday problems. **CSU/UC**

Psychology 240

Introduction to Social Psychology

Unit(s): 3.0

Class Hours: 48 Lecture total.

An exploration of the interlocking dynamics of psychology and sociology, examining the power of the situation, social interaction and social groups. Emphasized topics will include: aggression, prejudice, attraction, attitudes, group dynamics, self-development and social cognition. (Same as Sociology 240.) **CSU/UC (C-ID)**

Psychology 250

Introduction to Abnormal Psychology

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: Psychology 100/100H.

Recommended Preparation: English 061.

This course is an introduction to the scientific study of psychopathology and atypical behaviors. An investigation of abnormal behavior from an integrative approach utilizing the biological, psychological and sociocultural perspectives. A comprehensive survey of theory and research in abnormal psychology with identification, etiology, intervention and prevention being presented. **CSU/UC (C-ID)**



PUBLIC WORKS (PBLC)

Division of Business and Career Technical Education

Dean: Von Lawson
Facilitator: Carlos Castellanos

Associate of Science Construction Inspection (32319)

Public Works Inspectors entering the field or advancing within the field have a designated course of study to improve their employability. Course content is specifically designed to provide the inspectors with coursework relative to the field of inspection and related responsibilities.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Be eligible for employment in high wage, high growth careers as demonstrated by the biennial review process in Construction Inspection.

Major requirements*	Units
Public Works 050, Fundamentals of Public Works	3
Public Works 051, Infrastructure Construction and Maintenance	3
Public Works 061, Plan Interpretation and Cost Estimating	3
Public Works 063, Construction Materials and Testing	3
Public Works 070, Construction Inspection	3
Business 222, Business Writing	3
OR	3
Management 122, Business Communications	3
Computer Information Systems 101, Introduction to Microsoft Office	3
TOTAL	21

Certificate of Achievement Construction Inspection (11910)

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Be eligible for employment in high wage, high growth careers as demonstrated by the biennial review process in Construction Management.

Certificate requirements	Units
Public Works 050, Fundamentals of Public Works	3
Public Works 051 Infrastructure Construction and Maintenance	3
Public Works 061 Plan Interpretation and Cost Estimating	3
Public Works 063 Construction Materials and Testing	3
Public Works 070 Construction Inspection	3
Business 222, Business Writing	3
OR	3
Management 122, Business Communications	3
Computer Information Systems 101, Introduction to Microsoft Office	3
TOTAL	21

Associate of Science Construction Management (11909)

The Associate of Science degree and Certificate of Achievement in Construction Management is for current, new or future project managers and team members and those who may seek the PMP (Project Management Professional®) designation as part of their future career plan. The content includes project definition, planning, group dynamics, workplace diversity, team roles and communication techniques, problem solving, evaluation and final reporting on results in both a classroom setting and with opportunities for application.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Be eligible for employment in high wage, high growth careers as demonstrated by the biennial review process in Construction Management.

Major requirements*	Units
Public Works 050, Fundamentals of Public Works	3
Public Works 061, Plan Interpretation and Cost Estimating	3
Public Works 074, Contract Administration	3
Public Works 080, Principles of Project Management	3
OR	3
Business 090, Principles of Project Management	3
Public Works 110, Introduction to Microsoft Project	3
OR	3
Computer Information Systems 110, Introduction to Microsoft Project	3
Business 222, Business Writing	3
OR	3
Management 122, Business Communications	3
Computer Information Systems 101, Introduction to Microsoft Office	3
TOTAL	21

Certificate of Achievement Construction Management (21673)

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Be eligible for employment in high wage, high growth careers as demonstrated by the biennial review process in Construction Management.

Certificate requirements	Units
Public Works 050, Fundamentals of Public Works	3
Public Works 061, Plan Interpretation and Cost Estimating	3
Public Works 074, Contract Administration	3
Public Works 080, Principles of Project Management	3
OR	3
Business 090, Principles of Project Management	3
Public Works 110, Introduction to Microsoft Project	3
OR	3
Computer Information Systems 110, Introduction to Microsoft Project	3
Business 222, Business Writing	3
OR	3
Management 122, Business Communications	3
Computer Information Systems 101, Introduction to Microsoft Office	3
TOTAL	21

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Associate of Science Environmental Management (31847)

The Associate of Science degree and Certificate of Achievement in Environmental Management are designed for students who have completed either or both of the existing Public Works programs as well as incumbent workers seeking career opportunities. Upon completion of this degree and certificate program students will be eligible for employment as Environmental Compliance Officers, Technicians and Inspectors in city, county and state municipalities.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Be eligible for employment in high wage, high growth careers as demonstrated by the biennial review process in Environmental Management.

Major requirements*	Units
Public Works 050, Fundamentals of Public Works	3
Public Works 061, Plan Interpretation and Cost Estimating	3
Public Works 067, Environmental Management	3
Public Works 068, Fundamentals of Storm Water Management	3
Public Works 069, Green Infrastructure Construction	3
Computer Information Systems 101, Introduction to Microsoft Office	3
Management 122, Business Communications	3
OR	3
Business 222, Business Writing	
TOTAL	21

Certificate of Achievement Environmental Management (31848)

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Be eligible for employment in high wage, high growth careers as demonstrated by the biennial review process in Environmental Management.

Certificate requirements	Units
Public Works 050, Fundamentals of Public Works	3
Public Works 061, Plan Interpretation and Cost Estimating	3
Public Works 067, Environmental Management	3
Public Works 068, Fundamentals of Storm Water Management	3
Public Works 069, Green Infrastructure Construction	3
Computer Information Systems 101, Introduction to Microsoft Office	3
Management 122, Business Communications	3
OR	3
Business 222, Business Writing	
TOTAL	21

Certificate of Proficiency Code Enforcement Officer

The Certificate of Proficiency in Code Enforcement provides students with the course work necessary for employment. It is designed for individuals seeking a career as a Code Enforcement Officer as well as sworn or non-sworn inspectors, officers, or investigators employed by a city, state, or county agency seeking specialized training in prevention, detection, investigation and enforcement of violations of statutes or ordinances regulating public health, safety, and welfare, public works, business activities and consumer protection, building standards, land-use, or municipal affairs.

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Assess the laws and procedures related to code enforcement for Substandard Housing, Zoning, and Vehicle Abatement.
- Formulate the elements for preparation and documentation for Administrative Hearings and prosecution in court.

Certificate requirements	Units
Public Works 086, Basic Code Enforcement Officer	1
Public Works 087, Intermediate Code Enforcement Officer	1
Public Works 088, Advanced Code Enforcement Officer	1
Public Works 089, Code Enforcement Officer-Supervision	1
TOTAL	4

Courses

Public Works 050 Fundamentals of Public Works

Unit(s): 3.0

Class Hours: 48 Lecture total.

Overview of Public Works, including history and development, department functions, careers opportunities and future trends.

Public Works 051 Infrastructure Construction and Maintenance

Unit(s): 3.0

Class Hours: 48 Lecture total.

Covers the infrastructure construction and maintenance processes including: equipment, scheduling, materials, financing, project management, permitting, surveying, and repairs for transportation, flood control, public spaces, utilities and facilities of a city, municipality, county or state.

Public Works 061 Plan Interpretation and Cost Estimating

Unit(s): 3.0

Class Hours: 48 Lecture total.

Reading and interpreting plans related to public works projects, including roadway, water, sewer, storm drain and traffic projects. Related concepts include basic mathematical formulas and conversions, construction materials and equipment, surveying, project management, contract documents, costing, quantifying and computer applications.

Public Works 063 Construction Materials and Testing

Unit(s): 3.0

Class Hours: 48 Lecture total.

Covers properties, methods of use and testing procedures of construction materials. Common materials of construction include portland cement concrete, masonry, timber, iron, steel, plastic, soil and bituminous materials.

**Public Works 067****Environmental Management**

Unit(s): 3.0

Class Hours: 48 Lecture total.

An overview of the processes and requirements to obtain environmental clearance for Public Works construction projects, including other non-environmental related permits.

Public Works 068**Fundamentals of Storm Water Management**

Unit(s): 3.0

Class Hours: 48 Lecture total.

Understanding of regulatory stormwater discharge permits administered by Regional Water Quality Control Board. Course study includes permit compliance requirements for contractors, business owners, residents and government agencies.

Public Works 069**Green Infrastructure Construction**

Unit(s): 3.0

Class Hours: 48 Lecture total.

Covers alternative methods for stormwater management. Practices to maintain healthy waters, provide environmental benefits and support sustainable communities while providing flood mitigation, energy use reduction and air quality management.

Public Works 070**Construction Inspection**

Unit(s): 3.0

Class Hours: 48 Lecture total.

An overview of inspection techniques and procedures for examining materials and evaluating methods used in Public Works construction projects.

Public Works 074**Contract Administration**

Unit(s): 3.0

Class Hours: 48 Lecture total.

Covers the techniques, methods and processes used to manage Public Works construction projects. Includes planning, scheduling, execution, controlling and closure and evaluation of extra work, claims, disputed work and project documentation.

Public Works 080**Principles of Project Management**

Unit(s): 3.0

Class Hours: 48 Lecture total.

Utilizing project planning tools and techniques, learn how to define, plan, execute and deliver projects of all types and sizes. Emphasizes practical application using case studies to organize, schedule and manage projects effectively. Industry guest speakers included. (Same as Business 090.)

Public Works 086**Basic Code Enforcement Officer**

Unit(s): 1.0

Class Hours: 5 Lecture total, 35 Laboratory total.

This basic code enforcement class is designed to provide standardized academic and professional training for current California code enforcement officers or individuals seeking employment as a code enforcement officer. Course topics include enforcement ethics, inspection best-practices, planning and zoning, basic construction concepts, vehicle abatement, right of entry, inspection warrants, documenting investigations, and legal aspects of criminal, civil, and administrative case preparation. Grade: Pass/No Pass.

Public Works 087**Intermediate Code Enforcement Officer**

Unit(s): 1.0

Class Hours: 5 Lecture total, 35 Laboratory total.

The intermediate code enforcement class is designed to provide standardized academic and professional training for current California code enforcement officers or individuals seeking employment as a code enforcement officer. Course topics include the abatement of sub-standard or hazardous buildings, hazardous materials, residential construction, use of force, self-defense and chemical agents, criminal law, and methods to collaborate with the community. Grade: Pass/No Pass.

Public Works 088**Advanced Code Enforcement Officer**

Unit(s): 1.0

Class Hours: 5 Lecture total, 35 Laboratory total.

The advanced code enforcement course is designed to provide standardized academic and professional training for current California code enforcement officers or individuals seeking employment as a code enforcement officer. Course topics include effective communications, vectors and animal safety, developing staff reports and new ordinances, building, residential, mechanical, plumbing, and fire codes, and gang and drug awareness and officer safety. Optional field trips may be included. Grade: Pass/No Pass.

Public Works 089**Code Enforcement Officer-Supervision**

Unit(s): 1.0

Class Hours: 5 Lecture total, 35 Laboratory total.

The supervisory code enforcement class is designed to provide standardized academic and professional training for current California code enforcement officers or individuals seeking promotion to a senior or supervising code enforcement officer. Course topics include diversity, ethics, and communication for supervisors; performance management best-practices, employment law, assertive leadership, budgets, finance, and grant administration; promoting an agency, critical incident management, strategic planning, and internal investigations. Grade: Pass/No Pass.

Public Works 110**Introduction to Microsoft Project**

Unit(s): 3.0

Class Hours: 48 Lecture total.

How to plan a project, identify and create tasks, estimate workloads and durations, setup project schedules, maintain the schedule, assign resources, connect resources to tasks, setup a project budget, track progress utilize reports and close a project using Microsoft Project. (Same as Computer Information Systems 110.) **CSU**

Public Works 199**Cooperative Work Experience Education**

Unit(s): 1.0-4.0

Class Hours: 60-300 Laboratory total.

Corequisite: Six (6) units in Public Works courses.

This course will provide students majoring in the Public Works the opportunity to apply knowledge and skills gained from college courses in an actual work setting. Students must be enrolled in a minimum of six Public Works units. Job site experience will train the student in additional job skills that will transfer classroom learning to the workplace. Credit may be accrued at the rate of one (1) to four (4) units per semester for a maximum of sixteen (16) units. Additionally, students must work 75 paid hours or 60 non-paid hours per unit earned. Grade: Pass/No Pass. Open Entry/Open Exit. Students may repeat a work experience course four (4) times per Title 5, §55253, Cooperative Work Experience Education guidelines for a maximum of 16 units. A maximum of four (4) units may be earned during one (1) semester in occupation work experience education. **CSU**



READING (READ)

Division of Arts, Humanities and Social Sciences

Dean: Marilyn Flores

Department Chair, Reading: Amy Freese

The Reading program offers a comprehensive set of courses designed to help students develop and enhance reading comprehension and critical thinking skills for greater success in college courses. Reading courses assist students in building academic vocabulary, enhancing reading comprehension across disciplines and developing critical analysis and interpretation of college-level text.

Courses

Reading N96

Foundation for College Reading

Unit(s): 3.0

Class Hours: 48 Lecture total.

Introduces strategies for developing vocabulary and reading comprehension skills. Word recognition, context clues and dictionary skills are addressed. Comprehension skills such as finding main idea and supporting details, and recognizing patterns and structures are presented. Includes strategies for effective reading practices and overcoming reading anxiety.

Reading 097

Advanced College Reading

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: Reading N96 or qualifying profile from placement exam.

Designed to expand reading comprehension, increase knowledge of academic vocabulary, develop basic critical reading skills, improve reading rate and build confidence and positive attitudes toward reading. Includes strategies for effective reading practices and overcoming reading anxiety.

Reading 102

Academic Reading

Unit(s): 3.0

Class Hours: 48 Lecture total.

Recommended Preparation: English 061 or concurrent enrollment.

Introduces a repertoire of reading strategies aimed at preparing students for comprehension of complex college-level reading material. Advanced reading strategies provide the foundation for the development of critical reading and the recognition of patterns of academic thought. Reading strategies for specific disciplines, including the Social Sciences, Business, Humanities and the Arts, Mathematics and the Natural Sciences are presented. **CSU**

Reading 150

Critical Reading

Unit(s): 3.0

Class Hours: 48 Lecture total.

Recommended Preparation: English 101/101H or concurrent enrollment.

This course addresses the relationship between critical reading and critical thinking, including emphasis on the development of critical reading and thinking skills that facilitate the interpretation, analysis, criticism, and advocacy of ideas encountered in academic reading. **CSU**

REAL ESTATE (RE)

Division of Business and Career Technical Education

Dean: Von Lawson

Facilitator: Alana Gates

The Associate of Science degree and Certificate of Achievement in Real Estate are designed for individuals interested in careers in real estate as salespersons, brokers, and real estate industry professionals including mortgage brokers, property managers, title officers, developers and as government employees.

The program is intended to meet the mandatory and elective course requirements students need to sit for the California real estate sales or brokers license exam.

Associate of Science

Real Estate (11869)

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Be prepared to sit for the California Real Estate Sales license.

Major requirements*

	Units
Real Estate 102, Real Estate Principles	3
Real Estate 103, Legal Aspects of Real Estate	3
Real Estate 105, Real Estate Practice	3
Real Estate 106, Real Estate Finance	3
Real Estate 110, Real Estate Economics	3
Real Estate 112, Real Property Management	3
Real Estate 114, Appraisal Principles and Procedures	3.5

Select one (1) course from the following:

Accounting 101, Financial Accounting (4)	1-4
Real Estate 116, Residential Real Estate Appraisal (3.5)	
Real Estate 117, Residential Report Writing and Case Studies (1)	

TOTAL 22.5-25.5

Individuals interested in obtaining a California real estate salesperson or broker license are directed to contact the State of California Bureau of Real Estate at www.dre.ca.gov to ensure they are meeting both current and their individual requirements for licensing and taking the exam.



**Certificate of Achievement
Real Estate (21639)**

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Be prepared to sit for the California Real Estate Sales license.

Certificate requirements	Units
Real Estate 102, Real Estate Principles	3
Real Estate 103, Legal Aspects of Real Estate	3
Real Estate 105, Real Estate Practice	3
Real Estate 106, Real Estate Finance	3
Real Estate 110, Real Estate Economics	3
Real Estate 112, Real Property Management	3
Real Estate 114, Appraisal Principles and Procedures	3.5
Select one (1) course from the following:	1-4
Accounting 101, Financial Accounting (4)	
Real Estate 116, Residential Real Estate Appraisal (3.5)	
Real Estate 117, Residential Report Writing and Case Studies (1)	
TOTAL	22.5-25.5

Individuals interested in obtaining a California real estate salesperson or broker license are directed to contact the State of California Bureau of Real Estate at www.dre.ca.gov to ensure they are meeting both current and their individual requirements for licensing and taking the exam.

**Certificate of Proficiency
Real Estate Appraisal**

The Certificate of Proficiency in Real Estate Appraisal is designed for individuals interested in a career in real estate appraisal of both residential and commercial property. The program is intended to prepare students for the California real estate appraiser license exam, certified residential exam and certified general exam. As well as it provides coursework for real estate professionals.

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Demonstrate and apply knowledge of methods, concepts and standards according to USPAP (Uniform Standards of Professional Appraisal Practice.)

Certificate requirements	Units
Real Estate 102, Real Estate Principles	3
Real Estate 103, Legal Aspects of Real Estate OR	3
Real Estate 110, Real Estate Economics	
Real Estate 114, Appraisal Principles and Procedures	3.5
Real Estate 116, Residential Real Estate Appraisal	3.5
Real Estate 117, Residential Report Writing and Case Studies	1
TOTAL	14

Individuals interested in obtaining a Real Estate Appraiser Trainee and Residential license or a Real Estate Appraiser Certified Residential or General license are directed to contact the California State Office of Real Estate Appraisers (OREA) at www.OREA.ca.gov to ensure they are meeting both current and their individual educational and other requirements for licensing and taking the exam.

**Certificate of Proficiency
Real Estate Salesperson**

The Certificate of Proficiency in Real Estate Salesperson provides students with the coursework necessary to meet the state DRE (Department of Real Estate) educational requirements that qualify an individual to sit for the Salesperson's license exam. It also includes the basic information for a successful career in real estate sales.

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Demonstrate and apply knowledge of principles, procedures and practices of real estate sales according to DRE (Department of Real Estate) standards.

Certificate requirements	Units
Real Estate 102, Real Estate Principles	3
Real Estate 105, Real Estate Practice	3
Real Estate 110, Real Estate Economics	3
Real Estate 114, Appraisal Principles and Procedures	3.5
TOTAL	12.5

Courses

**Real Estate 102
Real Estate Principles**

Unit(s): 3.0
Class Hours: 48 Lecture total.
Provides basic information about real estate and prepares students for advanced study in specialized courses. Includes deeds, titles, agency, contracts, mathematics, finance, appraisal, escrow, leases. Required for the California real estate salesperson license. **CSU**

**Real Estate 103
Legal Aspects of Real Estate**

Unit(s): 3.0
Class Hours: 48 Lecture total.
California real estate law including contracts, ownership, estates, easements, landlord-tenant, trust deeds, liens, agency, security devices, and land use. Applies towards: (1) required course for the California real estate salesperson licensing and (2) California real estate broker's license requirements. **CSU**

**Real Estate 105
Real Estate Practice**

Unit(s): 3.0
Class Hours: 48 Lecture total.
Operation of the real estate business and the role of the agent. Includes listing, prospecting, sales techniques, use of current real estate forms; financing, title insurance, escrow and taxation. This course is required for the educational requirement for the California real estate salesperson license and may be applied toward the California real estate broker license requirements. **CSU**

**Real Estate 106
Real Estate Finance**

Unit(s): 3.0
Class Hours: 48 Lecture total.
Analysis of real estate financing. Covers the mortgage market, lenders, conventional and government-backed loans, processing and closing loans, foreclosures. Applies towards the partial fulfillment for the educational requirements for (1) California real estate salesperson license and (2) California real estate broker license. **CSU**

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.

**Real Estate 110****Real Estate Economics**

Unit(s): 3.0

Class Hours: 48 Lecture total.

Covers the factors influencing real estate values. Includes business cycles, regional and community growth, influences on real estate development. Applies towards the partial fulfillment for the educational requirements for (1) California real estate salesperson license and (2) California real estate broker license. **CSU**

Real Estate 112**Real Property Management**

Unit(s): 3.0

Class Hours: 48 Lecture total.

Principles and practices of managing residential, apartment, commercial and income properties. Covers property management, leases and contracts, collections, rent schedules, tenant selection and supervision, and budgets. Applies towards the partial fulfillment for the educational requirements for (1) California real estate salesperson license and (2) California real estate broker license. **CSU**

Real Estate 114**Appraisal Principles and Procedures**

Unit(s): 3.5

Class Hours: 60 Lecture total.

The principles and procedures of appraisal used to estimate market values; location analysis, standards and ethics, and the sales comparison, cost, and income approaches for residential properties. Course applies 60 hours of educational instruction towards the requirements for licensure from the California Office of Real Estate Appraisal (OREA). Course is required for the appraisal licenses for Trainee, Residential, Certified Residential, and Certified General license. Course meets the requirement for the Department of Real Estate (DRE) Brokers License and qualifies as one of the required courses for the Salespersons License. **CSU**

Real Estate 116**Residential Real Estate Appraisal**

Unit(s): 3.5

Class Hours: 60 Lecture total.

Studies in residential market analysis and highest and best use; residential appraiser site valuation and cost approach; and residential sales comparison and income approach. Course applies 60 hours of educational instruction towards the requirements for licensure from the California Office of Real Estate Appraisal (OREA). Course is required for the appraisal licenses for Trainee, Residential, Certified Residential, and Certified General license. Course meets the requirement for the Department of Real Estate (DRE) Brokers License and qualifies as one of the required courses for the Salespersons License. **CSU**

Real Estate 117**Residential Report Writing and Case Studies**

Unit(s): 1.0

Class Hours: 16 Lecture total.

Residential report writing and case studies in appraisal to include theories, techniques, and procedures of using various residential forms and reports for appraisal. Course applies 16 hours of educational instruction towards the requirements for licensure from the California Office of Real Estate Appraisal (OREA). Course is required for the appraisal licenses for Trainee, Residential, Certified Residential, and Certified General license. **CSU**

SCIENCE

Division of Mathematics and Sciences

Dean: Martin Stringer

Department Co-Chairs Sciences: Denise Bailey, Debra Brooks, Lisa Camarco, Alicia Frost, Danielle Martino, Scott Sakamoto, Mark Smith, Cynthia Swift, Michael Taylor, Jeffery Wada, Ian Woodhead, Laney Wright

Faculty: Denise Bailey, Morrie Barembaum, Debra Brooks, Lisa Camarco, Shawn Cummins, Veselka Danova, Darlene Diaz, Nahla El-Said, Denise Foley, Alicia Frost, Anne Hauscarriague, Robert Houska, Eric Hovanitz, Vanessa Jones, Anson Lui, Danielle Martino, Kathleen Moore, Charleen Powers, Craig Rutan, Scott Sakamoto, Randy Scott, Mark Smith, Cynthia Swift, Michael Taylor, Nicole Torneo, Jeffrey Wada, Joyce Wagner, Alison Williams, Ian Woodhead, Laney Wright

**Associate of Science
Science (11953)**

The Associate of Science degree in Science is designed to provide students with a foundation in science that will prepare them for transfer to a four-year college or university to complete a baccalaureate science degree in disciplines such as astronomy, biology, biochemistry, chemistry, Earth sciences, geology, geophysics, meteorology, oceanography, or physics.

For transfer with upper-division standing, most four-year institutions require a minimum of one year of calculus and one-year of general chemistry in addition to the courses required in the science major. Check with the Transfer Success Center or a counselor for specific transfer requirements.

Units used to satisfy the general education requirements may also be used to satisfy the Science Degree requirements.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Clearly communicate scientific reasoning and quantitative problem solving skills using appropriate vocabulary, methodologies, and technologies.
- Employ the scientific method of proposing hypotheses based on observations, test the hypotheses, critically analyze experimental data and formulate conclusions based on that analysis.

Emphasis requirements*

Core courses	Units
Chemistry 219/219H, General Chemistry	5
Mathematics 180/180H, Single Variable Calculus I	4
TOTAL	9

General Science Emphasis:

Core Courses	9
Mathematics 185, Single Variable Calculus II	4
Electives	13
TOTAL	26

Astronomy Emphasis:

Core Courses*	9
Astronomy 109, Introduction to the Solar System OR	3
Astronomy 112, Introduction to Cosmology	
Astronomy 110, Introduction to Stars and Galaxies	3
Astronomy 140, Astronomy Laboratory	1
Mathematics 185, Single Variable Calculus II	4
Electives*	6
TOTAL	26

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



*Astronomy Emphasis students may substitute Physics 250A for Chemistry 219.

**Completion of Physics 250A/250B/250C and/or Mathematics 280 is highly recommended for Astronomy Emphasis students.

Biology Emphasis:

Core Courses**	9
Biology 211, Cellular and Molecular Biology	5
Biology 212, Animal Diversity and Ecology	
OR	
Biology 214, Plant Diversity and Evolution	
OR	5
Biology 221, Animal Diversity and Evolution	
OR	
Biology 231, Plant Diversity and Ecology	
Electives**	8
TOTAL	27

**Biology Emphasis students may substitute Mathematics 150 for Mathematics 180/180H.

**Completion of Chemistry 229, Biology 221 (or 212) and 231 (or 214) is highly recommended for Biology Emphasis students.

Chemistry Emphasis:

Core Courses	9
Chemistry 229, General Chemistry and Qualitative Analysis	5
Mathematics 185, Single Variable Calculus II	4
Electives***	8
TOTAL	26

***Completion of Chemistry 249 and 259 is highly recommended for Chemistry Emphasis students.

Earth Sciences Emphasis:

Course	Units
Core Courses	9
Earth Sciences 100, Physical Geology	3
Earth Sciences 100L, Physical Geology Laboratory	1
Earth Sciences 111, Historical Geology	4
Electives****	9
TOTAL	26

****Completion of Mathematics 185 and Chemistry 229 is highly recommended for Earth Sciences Emphasis students.

Electives for any emphasis of the Science Degree must be selected from the following courses:

Astronomy 109, 110, 112, 140; Biology 109/109H, 109L/109HL, 139, 149, 177, 200, 211, 212, 214, 221, 229, 231, 239, 249, 259; Chemistry 209, 210, 229, 249, 259; Earth Sciences 100, 100L, 111, 120, 121, 130, 160, 200, 212, 214; Mathematics 185, 280; Physical Science 100; Physics 100, 150A, 150AC, 150B, 150BC, 250A, 250B, 250C.	26-27
TOTAL	26-27

SIGN LANGUAGE (SIGN)

(See American Sign Language)

SOCIAL SCIENCE (SOCS)

Division of Arts, Humanities and Social Sciences

Dean: Marilyn Flores

Department Co-Chairs, Social Sciences: Cari Cannon, Vanessa Engstrom, Tiffany Gause, Scott Howell, Nooshan Shekarabi, Alexander Taber, Christine Umali Kopp
Faculty: Emma Breeden, Cari Cannon, Vanessa Engstrom, Tiffany Gause, Scott Howell, Nicholas Magalouis, Michael Parrella, Narges Rabii-Rakin, Stephen Reed, Nooshan Shekarabi, Alexander Taber, Allison Tripp, Christine Umali Kopp

Associate of Arts

Social Science (11937)

The Associate of Arts degree in Social Science is designed to provide the student with a better understanding of man's behavior, past and present, the historical and social environmental forces that operate in the world, and the significant problems of the present day. Completion of the degree prepares students to move into a curriculum at a four-year institution leading to a baccalaureate degree. Some employment opportunities are available in the teaching of social science.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Discuss human behavior within the context of a social environment. Apply concepts of anthropology to the study of diverse world civilizations.
- Understand how macro-economic concepts can be applied to daily decision-making.
- Develop analytic skills through the study of important people, events, and concepts in U.S. and world history.
- Demonstrate knowledge of American political institutions and understand the importance of participatory citizenship and local involvement.

Emphasis requirements*

	Units
History 101/101H, World Civilizations to the 16th Century	
OR	3
History 102/102H, World Civilizations Since the 16th Century	
History 120/120H, United States to 1877	
OR	3
History 121/121H, United States Since 1877	
Anthropology 100/100H, Introduction to Cultural Anthropology	
OR	3
Sociology 100/100H, Introduction to Sociology	
Economics 102, Principles/Macro	3
Political Science 101/101H, Introduction to American Government	3
Psychology 100/100H, Introduction to Psychology	3

Select two (2) courses from the following:

- Anthropology 101, Introduction to Physical Anthropology (3)
- Anthropology 103, Introduction to Archaeology (3)
- Computer Science 100, The Computer and Society (3)
- English 231, Survey of English Literature I (3)
- English 232, Survey of English Literature II (3)
- English 241, Survey of American Literature, 1600-1865 (3)
- English 242, Survey of American Literature, 1865-Present (3)
- Geography 100/100H, World Regional Geography (3)
- History 127, Women in U.S. History (3)
- History 152, Latin American History (3)
- History 162, Asian Civilizations (3)
- Political Science 200/200H, American Political Thought (3)
- Political Science 201, Introduction to Comparative Politics (3)
- Political Science 220, International Politics (3)

TOTAL 24

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Courses

Social Science 219 Statistics and Probability

Unit(s): 4.0

Class Hours: 80 Lecture total.

Prerequisite: Mathematics 080 or placement into Mathematics 219 on the Mathematics Level 3 placement exam and a course equivalent to Mathematics 080.

First course in statistical reasoning. Includes descriptive statistics, graphical displays of data, probability, confidence intervals, hypothesis testing, regression, contingency tables, ANOVA, and non-parametric statistics. Includes use of technology. (Same as Mathematics 219.) *CSU/UC*

Social Science 219H Honors Statistics and Probability

Unit(s): 4.0

Class Hours: 80 Lecture total.

Prerequisite: Mathematics 080 or placement into Mathematics 219 on the Mathematics Level 3 placement exam and a course equivalent to Mathematics 080 and a high school or college GPA of 3.0 or above.

This course is an enhanced format for the beginning course in statistics and probability by using a seminar approach, applying statistical software and presenting individual research. This course includes descriptive statistics, graphical displays of data, probability, confidence intervals, hypothesis testing, regression, contingency tables, ANOVA and non-parametric statistics, with applications designed around the individual interests of students. (Same as Mathematics 219H.) *CSU/UC*

SOCIOLOGY (SOC)

Division of Arts, Humanities and Social Sciences

Dean: Marilyn Flores

Department Chair, Sociology: Tiffany Gause

Associate in Arts

Sociology for Transfer (30600)

The Associate in Arts in Sociology for Transfer degree is an interdisciplinary social science program providing students an understanding of interpersonal behavior and social structure, a critical appreciation of contemporary social life, and a form of reference for an analysis of human behavior. Successful completion of the transfer degree in Sociology guarantees the student acceptance to the California State University system to pursue a baccalaureate degree in Sociology or a related field.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Demonstrate familiarity with the theoretical perspectives, concepts, findings, problems, institutions, history, and trends in the field of sociology.

Major requirements*	Units
Sociology 100/100H, Introduction to Sociology	3
Select two (2) courses from the following (List A):	7
Sociology 116/116H, Social Problems (3)	
Social Science 219/219H, Statistics and Probability (4)	
OR	
Mathematics 219/219H, Statistics and Probability (4)	
Select two (2) courses from the following (List B):	6
Sociology 130, Relationships, Marriages, and Family Dynamics (3)	
Sociology 240/Psychology 240, Introduction to Social Psychology (3)	
Select one (1) course from the following (List C):	3-4
Anthropology 100 /100H, Introduction to Cultural Anthropology (3)	
English 103/103H, Critical Thinking and Writing (4)	
Psychology 100/100H, Introduction to Psychology (3)	
TOTAL	19-20

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



**Associate of Arts
Sociology (11947)**

The Associate of Arts degree in Sociology is an interdisciplinary social science program providing students an understanding of interpersonal behavior and social structure, a critical appreciation of contemporary social life, a form of reference for an analysis of human behavior. Completion of the associate of arts degree prepares students to move into a curriculum at a four-year institution leading to a baccalaureate degree.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Learn the application of research methods in investigating social problems.
- Learn to implement perspectives in dealing with social dynamics.
- Understand group interaction, including gender, ethnicity, age differences, and social class.
- Learn the influence of social institutions on individuals and groups.

Major requirements*	Units
Anthropology 100/100H, Introduction to Cultural Anthropology	3
Psychology 100/100H, Introduction to Psychology	3
Sociology 100/100H, Introduction to Sociology	3
Sociology 116/116H, Social Problems	3
Select two (2) courses from the following:	6-7
Anthropology 101, Introduction to Physical Anthropology (3)	
Anthropology 104, Language and Culture (3)	
Mathematics 219/219H, Statistics and Probability (4)	
OR	
Social Science 219/219H, Statistics and Probability (4)	
Psychology 157, Introduction to Child Psychology (3)	
Psychology 240/Sociology 240, Introduction to Social Psychology (3)	
Sociology 130, Relationships, Marriages, and Family Dynamics (3)	
TOTAL	18-19

Courses

Sociology 100

Introduction to Sociology

Unit(s): 3.0

Class Hours: 48 Lecture total.

The scientific study of human societies and behavior focusing on the process of social interaction, patterns of social inequality, and the influence of social institutions on individuals as members of social groups. Special emphasis provided to explain factors promoting social stability and social change. *CSU/UC (C-ID)*

Sociology 100H

Honors Introduction to Sociology

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: A high school or college GPA of 3.0 or above.

A seminar-style, content enriched course to provide a critical and extensive exploration of the sociological perspective, methods, and theories of social interaction, stability and change. Focuses on the importance of sociology for understanding individuals in a social context and provides a comprehensive understanding of and scientific way of thinking about society. *CSU/UC (C-ID)*

Sociology 115

Death and Dying

Unit(s): 3.0

Class Hours: 48 Lecture total.

This course includes various perspectives on death, both cross-cultural and historical. Examines beliefs, traditions, rituals and practices surrounding death in American society; health care systems (the hospital and the dying patient, hospice, etc.); death and the process of dying; bioethics - dying in the technology age; euthanasia, suicide, funerals, grief, and bereavement; the law and death, including living wills, organ donation, and autopsies; and life after death - old and new meanings. Field trips may be required. *CSU*

Sociology 116

Social Problems

(Formerly: Sociology 140, Analysis of Social Trends and Problems)

Unit(s): 3.0

Class Hours: 48 Lecture total.

An extensive survey of contemporary social trends and problems through sociological analysis concentrating on their causes, complexities, consequences, and possible solutions. Special emphasis will be placed on the problems in the U.S. with consideration of the global perspective. *CSU/UC (C-ID)*

Sociology 116H

Honors Social Problems

(Formerly: Sociology 140H, Honors Analysis of Social Trends and Problems)

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: A high school or college GPA of 3.0 or above.

A seminar style, in-depth sociological analysis and critique of U.S. social trends and problems with an emphasis on contemporary and historical social policy, with additional consideration of global perspectives. *CSU/UC (C-ID)*

Sociology 130

Relationships, Marriages, and Family Dynamics

(Formerly: Sociology 112, Relationships, Marriages, and Family Dynamics)

Unit(s): 3.0

Class Hours: 48 Lecture total.

In-depth examination of the process of developing intimate relationships leading to committed partnerships and marriages with emphasis on effective communication techniques, understanding relationship dynamics, parenting, diverse family systems and overcoming family stressors at each life stage. *CSU/UC (C-ID)*

Sociology 240

Introduction to Social Psychology

Unit(s): 3.0

Class Hours: 48 Lecture total.

An exploration of the interlocking dynamics of psychology and sociology, examining the power of the situation, social interaction and social groups. Emphasized topics will include: aggression, prejudice, attraction, attitudes, group dynamics, self-development and social cognition. (Same as Psychology 240.) *CSU/UC (C-ID)*

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



SPANISH (SPAN)

Division of Arts, Humanities and Social Sciences

Dean: Marilyn Flores

Department Chair, Modern Languages: Elizabeth Baez

Associate in Arts

Spanish for Transfer (32045)

The Associate in Arts in Spanish for Transfer degree is designed for students who wish to transfer to a four-year institution and students who wish to achieve proficient oral and written comprehension and communication in Spanish, and a basic understanding and sensitive appreciation of Spanish speakers' culture. Successful completion of the transfer degree in Spanish guarantees the student acceptance to the California State University system. It would also prepare the student to pursue a career in healthcare, law enforcement, public safety, public service, education in the U.S. government, translation and/or interpretation, business, international relations, hotel and food services, teaching English in Spanish speaking countries, travel industry and other related fields.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Demonstrate understanding of the cultural perspectives and mores of Spanish speakers through the analysis and proper application of grammatical structures, appropriate vocabulary, idiomatic expressions to communicate orally and in writing in the target language.
- Demonstrate understanding of the Spanish language through the synthesis, analysis and evaluation of the target language to derive meaning of implicit and explicit written material and spoken messages in authentic cultural context.

Major requirements*	Units
Spanish 101/101H, Elementary Spanish I (5)	
OR	5
Spanish 101A & 101B, Elementary Spanish IA & IB (2.5+2.5)	
Spanish 102/102H, Elementary Spanish II	5
Spanish 201, Intermediate Spanish I	5
Spanish 202, Intermediate Spanish II	5
Select one (1) course from the following (List A):	3
Spanish 194, Beginning Conversational Spanish (3)	
Spanish 195A, Advanced Conversational Spanish (3)	
Spanish 195B, Advanced Conversational Spanish (3)	
<i>If a student places out of any core course(s) and is not awarded units for that course, the student will need to take additional units to compensate for the course/unit(s) required. Suggested course substitutions include:</i>	
• Chicano Studies 101 (3)	
• Any course from List A (3) (may not be a course used to satisfy the requirements in List A)	
TOTAL	23

Courses

Spanish N51

Spanish for Public Personnel

Unit(s): 3.0

Class Hours: 48 Lecture total.

Designed for those needing basic Spanish conversation and vocabulary in a specific field of work, such as law enforcement, fire safety, health, and education. Includes clear and concise communication for emergency situations. Not applicable to associate degree.

Spanish 101

Elementary Spanish I

Unit(s): 5.0

Class Hours: 80 Lecture total, 16 Laboratory total.

Practice and integration of pronunciation, grammar, vocabulary, common idioms, listening, speaking, reading and writing techniques for the expression of ideas orally and in writing. Introduction to Hispanic culture. Designated sections focus on skills for Spanish speakers. Spanish 101 is equivalent to two years of high school Spanish. **CSU/UC (C-ID)**

Spanish 101A

Elementary Spanish IA

Unit(s): 2.5

Class Hours: 40 Lecture total, 8 Laboratory total.

Spanish class focusing on pronunciation, grammar essentials, basic vocabulary including common idioms, listening, speaking, reading and writing techniques to provide avenues for the expression of ideas orally and in writing. Introduction to Hispanic culture is included. Spanish 101A and Spanish 101B together are equivalent in units and content to Spanish 101 and equivalent to two years of high school Spanish. **CSU/UC**

Spanish 101B

Elementary Spanish IB

Unit(s): 2.5

Class Hours: 40 Lecture total, 8 Laboratory total.

Prerequisite: Spanish 101A.

Spanish class focusing on pronunciation, grammar essentials, basic vocabulary including common idioms, listening, speaking, reading and writing techniques to provide avenues for the expression of ideas orally and in writing. Introduction to Hispanic culture is included. Spanish 101A and Spanish 101B together are equivalent in units and content to Spanish 101 and equivalent to 2 years of high school Spanish. **CSU/UC (C-ID)**

Spanish 101H

Honors Elementary Spanish I

Unit(s): 5.0

Class Hours: 80 Lecture total, 16 Laboratory total.

Prerequisite: A high school or college GPA of 3.0 or above.

Enhanced and intensive practice and integration of pronunciation, grammar, vocabulary, common idioms, listening, speaking, reading and writing techniques for the expression of ideas orally and in writing. Enriched introduction of Hispanic culture. Spanish 101H is equivalent to two years of high school Spanish. **CSU/UC (C-ID)**

Spanish 102

Elementary Spanish II

Unit(s): 5.0

Class Hours: 80 Lecture total, 16 Laboratory total.

Prerequisite: Spanish 101/101H or 101A and 101B or two years of high school Spanish.

A college level Spanish class focusing on further training in language skills providing avenues for the expression of ideas orally and in writing. Additional study of Hispanic culture. Designated sections focus on skills for Spanish speakers. Spanish 102 is equivalent to the third year of high school Spanish. **CSU/UC (C-ID)**

Spanish 102H

Honors Elementary Spanish II

Unit(s): 5.0

Class Hours: 80 Lecture total, 16 Laboratory total.

Prerequisite: Spanish 101/101H or 101A and 101B or two years of high school Spanish and a high school or college GPA of 3.0 or above.

Further enhanced and intensive training in language skills for the expression of ideas orally and in writing. Additional enriched study of Hispanic culture. NOTE: Some sections are designated for Spanish speakers. Spanish 102H is equivalent to the third year of high school Spanish. **CSU/UC (C-ID)**



Spanish 115

Practical Communication in Spanish for Teachers

Unit(s): 2.0

Class Hours: 32 Lecture total.

Recommended Preparation: Spanish 101/101H or 101B.

Course emphasizes development of basic reading, oral, and written communication skills in Spanish for realistic situations in a classroom environment, and familiarizes students with the culture of Spanish-speakers. *CSU*

Spanish 194

Beginning Conversational Spanish

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: Spanish 101/101H, 101B or two years of high school Spanish.

Development of conversational and composition skills. Review of language structure through discussions, conversations, readings and compositions dealing with Spanish speakers' culture and current events. *CSU*

Spanish 195A

Advanced Conversational Spanish

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: Spanish 102/102H.

Further development of conversational skills. Review of language structures as well as reinforcement of new vocabulary and idioms through discussions of reading selections dealing with historical and current events to deepen appreciation of Hispanic cultures. *CSU/UC*

Spanish 195B

Advanced Conversational Spanish

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: Spanish 195A.

Continuation of development of conversational skills. Provides avenues for the expression of ideas introduced in literary and current event readings through discussions and class presentations to deepen appreciation of Hispanic cultures. *CSU/UC*

Spanish 201

Intermediate Spanish I

Unit(s): 5.0

Class Hours: 80 Lecture total, 16 Laboratory total.

Prerequisite: Spanish 102/102H or three years of high school Spanish.

A college-level Spanish class focusing on expansive review of usage and grammar, discussions of interpretive readings, conversation, and composition. *CSU/UC (C-ID)*

Spanish 202

Intermediate Spanish II

Unit(s): 5.0

Class Hours: 80 Lecture total, 16 Laboratory total.

Prerequisite: Spanish 201 or four years of high school Spanish.

A college-level Spanish class focusing on a specialized review of grammar and composition, discussions in Spanish of history and culture based on literary materials. *CSU/UC (C-ID)*

Spanish 213

College Spanish Composition

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: Spanish 201 (may be taken concurrently) or three years of high school Spanish.

Comprehensive review and application of Spanish grammar and emphasis on the development of writing based on discussions, cultural, and literary materials. *CSU/UC*

SURVEY/MAPPING SCIENCES (SURV)

Division of Business and Career Technical Education

Dean: Von Lawson

Facilitator: Donald Mertens

The Associate of Science degree and Certificate of Achievement in Land Surveying provide the student a thorough background in land surveying and mapping in addition to an introduction to collection, manipulation, formatting and mapping of geospatial data. The successful graduate of this program will have the technical expertise necessary for an entry level position in the fields of Geographic Information Systems, Land Surveying, and Digital Photogrammetry. The program also assists those students preparing for the State Land Surveyor-In-Training and Land Surveyor's Exams. The State Board of Registration for Professional Engineers and Land Surveyors will grant one year of experience credit for students completing an Associate Degree in Survey/Mapping Sciences.

Associate of Science

Land Surveying (11906)

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Be prepared for careers in Geographical Information Systems, Land Surveying, and Digital Photogrammetry.

Major requirements*

	Units
Survey/Mapping Sciences 118, Plane Surveying	4
Survey/Mapping Sciences 119, Advanced Plane Surveying	4
Survey/Mapping Sciences 205, Computer Aided Drafting Fundamentals for Surveyors	3
Survey/Mapping Sciences 221, Advanced Problems in Surveying I	3
Survey/Mapping Sciences 222, Advanced Problems in Surveying II	3
Survey/Mapping Sciences 229, Legal Aspects of Land Surveying I	3
Survey/Mapping Sciences 230, Legal Aspects of Land Surveying II	3
TOTAL	23

Certificate of Achievement

Land Surveying (21668)

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Be prepared for careers in Geographical Information Systems, Land Surveying, and Digital Photogrammetry.

Certificate requirements

	Units
Survey/Mapping Sciences 118, Plane Surveying	4
Survey/Mapping Sciences 119, Advanced Plane Surveying	4
Survey/Mapping Sciences 205, Computer Aided Drafting Fundamentals for Surveyors	3
Survey/Mapping Sciences 221, Advanced Problems in Surveying I	3
Survey/Mapping Sciences 222, Advanced Problems in Surveying II	3
Survey/Mapping Sciences 229, Legal Aspects of Land Surveying I	3
Survey/Mapping Sciences 230, Legal Aspects of Land Surveying II	3
TOTAL	23

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Courses

Survey/Mapping Sciences 118

Plane Surveying

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Recommended Preparation: Mathematics 160.

History of and careers in surveying. Introduction to survey measurements, distance, direction and elevations with math review. Fundamentals of traverse computations and adjustment. Recording field measurements by hand and electronically. **CSU/UC**

Survey/Mapping Sciences 119

Advanced Plane Surveying

Unit(s): 4.0

Class Hours: 48 Lecture total, 48 Laboratory total.

Prerequisite: Survey/Mapping Sciences 118 or possession of a valid Certificate as a Land Surveyor-In-Training (LSIT) issued by any state.

Recommended Preparation: Mathematics 160.

Emphasis on coordinate geometry calculations. Route surveying with horizontal and vertical curves. Topographic surveying and mapping. Construction surveying. Introduction to geospatial technologies, boundary surveying and surveys of public lands. Field surveying projects. Assists in passing the land surveyor-in-training exam. **CSU/UC**

Survey/Mapping Sciences 155

Introduction to Geographic Information Systems

Unit(s): 3.0

Class Hours: 48 Lecture total.

Recommended Preparation: Familiarity with PC and Windows operating environment.

This course introduces basic scientific principles of Geographic Information Systems (GIS) as they relate to working with data that have important spatial orientation and organization. Geometric and geographic concepts and theories are used to develop scientific methods for proper communication of the data and the solution of problems that have spatial relationships. Course covers basic concepts in mapping and orientation, the development of map scales and comparison of different coordinate systems and data error analysis. (Same as Geography 155.) **CSU/UC (C-ID)**

Survey/Mapping Sciences 205

Computer Aided Drafting Fundamentals For Surveyors

Unit(s): 3.0

Class Hours: 48 Lecture total.

Recommended Preparation: Survey/Mapping Sciences 119.

A first course in computer drafting with applications in land surveying specifically intended for students with land surveying training or experience. **CSU**

Survey/Mapping Sciences 221

Advanced Problems in Surveying I

Unit(s): 3.0

Class Hours: 48 Lecture total.

Recommended Preparation: Survey/Mapping Sciences 119 and Mathematics 160.

Measurement analysis, adjustments, geodesy, state plane coordinates, global position system. Prepares students for land survey exams. **CSU**

Survey/Mapping Sciences 222

Advanced Problems in Surveying II

Unit(s): 3.0

Class Hours: 48 Lecture total.

Recommended Preparation: Survey/Mapping Sciences 119, 221 and Mathematics 160.

Introduction to photogrammetry emphasizing concepts and calculations. Route surveying includes horizontal and vertical curves, volume calculations and construction staking. Prepares students for land survey exams. **CSU**

Survey/Mapping Sciences 229

Legal Aspects of Land Surveying I

Unit(s): 3.0

Class Hours: 48 Lecture total.

Recommended Preparation: Survey/Mapping Sciences 119.

Basic elements of the U.S. Public Land Survey System, including background, history, and subdivisions of sections and restoration of lost corners. Principles of preparing land descriptions for surveyors and title company personnel. Common pitfalls and how to avoid them. **CSU**

Survey/Mapping Sciences 230

Legal Aspects of Land Surveying II

Unit(s): 3.0

Class Hours: 48 Lecture total.

Recommended Preparation: Survey/Mapping Sciences 229.

Principles and techniques of boundary control. Interpretation of land descriptions, voluntary and involuntary transfer of property, senior rights, simultaneous conveyances, sequential conveyances, and case law pertaining to boundary disputes. **CSU**



TELEVISION/VIDEO COMMUNICATIONS (TELV)

Division of Business and Career Technical Education

Dean: Von Lawson

Certificate of Proficiency Digital Media Production

The Certificate of Proficiency in Digital Media Production will provide students with the skills and practical experience to create digital content for employers and clients. The program introduces students to video and commercial production, non-linear editing, digital arts as well as elements associated with running a business.

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Demonstrate readiness for careers in the fields of commercial and corporate video, and digital marketing.

Certificate requirements	Units
Art 195, Introduction to Digital Media Arts	3
Television/Video Communications 122, Screenwriting for Digital Media	3
Television/Video Communications 124, Introduction to Digital Media Production	3
Television/Video Communications 126, Industrial Video Production (IVP)	3
Television/Video Communications 127, Post Production II/ Motion Graphics	3
TOTAL	15

Certificate of Proficiency Digital Media Studies

The Certificate of Proficiency in Digital Media Studies is designed to develop students' understanding of television, film and digital media arts. The program includes an overview of the historical, theoretical, economic and technological impact of the industry on society. In addition, students will gain practical experience in scriptwriting, production and post-production. Upon completion of this certificate, students may choose one of three pathways: transfer to higher education, self-employment or a career in the entertainment industry.

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Develop scripts, features, video productions and other content that demonstrate creative proficiency in the various media platforms including film, TV, radio, advertising, and the internet.

Certificate requirements	Units
Television/Video Communications 103, History of Film to 1945	3
Television/Video Communications 104, History of Film from 1945 to Present	3
Television/Video Communications 105, Mass Media and Society	3
Television/Video Communications 122, Screenwriting for Digital Media	3
Television/Video Communications 124, Introduction to Digital Media Production	3
TOTAL	15

Courses

TV/Video Communications 100

Introduction to Electronic Media: TV, Radio, Film, and the Internet

Unit(s): 3.0

Class Hours: 48 Lecture total.

Survey of historical development, impact, and business practices of TV, Radio, Film, and the Internet. Emphasizes career opportunities and basic studio operations. **CSU**

TV/Video Communications 101

TV and Society: A Visual History

Unit(s): 3.0

Class Hours: 48 Lecture total.

Evolution and impact of TV programming as business and art form in American society. Development of a visual literacy and appreciation of television's various formats-sitcom, Westerns, soaps, dramas, mini series-through videotape viewings and guest speakers. **CSU**

TV/Video Communications 103

History of Film to 1945

Unit(s): 3.0

Class Hours: 48 Lecture total.

A survey course exploring film as an art form and developing appreciation of historical, artistic and technical advances from 1890s to 1945. **CSU/UC**

TV/Video Communications 104

History of Film From 1945 to Present

Unit(s): 3.0

Class Hours: 48 Lecture total.

A lecture/visual aids course exploring film as an art form and developing appreciation of historical, artistic and technical advances. **CSU/UC**

TV/Video Communications 105

Mass Media and Society

Unit(s): 3.0

Class Hours: 48 Lecture total.

Exploration of the history, effects, and role of mass media in U.S. society. Examines major media forms (TV, radio, film, newspapers, magazines, ads, the Internet) in our information-conscious culture. **CSU/UC**

TV/Video Communications 120

Beginning Writing for TV, Film, and Corporate Video

Unit(s): 3.0

Class Hours: 48 Lecture total.

Recommended Preparation: English 101/101H.

Designed to acquaint students with practical approaches to writing for the television and motion picture and corporate video industries. Emphasis on the development of story, treatments and first drafts of scripts. **CSU**

TV/Video Communications 122

Screenwriting for Digital Media

Unit(s): 3.0

Class Hours: 48 Lecture total.

The primary concern of the course is writing scripts for digital media. Students will learn scriptwriting fundamentals, format, dramatic structure; and how to put those skills to use in the form of non-narrative and narrative scripts for clients and employers. **CSU**

TV/Video Communications 124

Introduction to Digital Media Production

Unit(s): 3.0

Class Hours: 32 Lecture total, 48 Laboratory total.

This course introduces Digital Single Lens Reflex (DSLR) video acquisition, dual channel audio acquisition, lighting and non-linear digital editing equipment. Students will use professional procedures from pre-production through post-production to develop, produce and execute to completion various commercial and industrial video formats applicable to digital production. **CSU**



**TV/Video Communications 126
Industrial Video Production (IVP)**

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: TV/Video Communications 124.

Provides instruction on working with non-profit and commercial clients to deliver video products which meet the needs, goals and mission of clients. Students will learn about target audience and how to create product for that audience. Students will create one public service announcement (PSA) for a non-profit organization and one promotional video for a non-profit or commercial client. **CSU**

**TV/Video Communications 127
Post Production II/Motion Graphics**

Unit(s): 3.0

Class Hours: 32 Lecture total, 48 Laboratory total.

Recommended Preparation: TV/Video Communications 124.

This course builds on the knowledge and skills received in Introduction to Digital Production. Students learn the aesthetics and techniques of incorporating graphics and special effects while practicing advanced digital video editing skills. **CSU**

THEATRE ARTS (THEA)

Division of Arts, Humanities and Social Sciences

Dean: Marilyn Flores

Department Chair, Performing Arts: Binh Vu

Courses

**Theatre Arts 100
Introduction to Theatre**

Unit(s): 3.0

Class Hours: 48 Lecture total.

An introduction to the art and concepts of theatre through a study of modern and historical theories of dramatic structure, playwriting, directing, design, and acting. Attendance at live theatre required. **CSU/UC (C-ID)**

**Theatre Arts 110
Acting Fundamentals**

Unit(s): 3.0

Class Hours: 48 Lecture total, 16 Laboratory total.

A study of acting involving the development of acting techniques, styles and disciplines. Provides the student with theory and practical experience with varied characterizations. Emphasizes individual growth and acquired skills necessary to the acting craft. A combination of Theatre Arts 110, 111 and 118 may be taken a maximum of four enrollments. **CSU/UC**

**Theatre Arts 111
Intermediate Acting**

Unit(s): 3.0

Class Hours: 48 Lecture total, 16 Laboratory total.

Prerequisite: Theatre Arts 110.

Further study in the art of acting for the stage, investigating in-depth character study, role portrayal, special problems, and personal technique. Acting skills developed through use of exercises, monologues, and scenes from contemporary theatre. A combination of Theatre Arts 110, 111 and 118 may be taken a maximum of four enrollments. **CSU/UC**

**Theatre Arts 118
Fundamentals of Scene Study**

Unit(s): 2.0

Class Hours: 32 Lecture total, 32 Laboratory total.

Prerequisite: Theatre Arts 110.

A continued study for the beginning actor in the preparation and presentation of scenes from contemporary drama. Students prepare scenes with partners for performance and critique. Recommended for acting majors. A combination of Theatre Arts 110, 111 and 118 may be taken a maximum of four enrollments. **CSU/UC**

**Theatre Arts 121
Beginning Performance Ensemble**

Unit(s): 2.5

Class Hours: 32 Lecture total, 32 Laboratory total.

Prerequisite: Audition.

A study of the standards and expectations for an actor in auditions, casting, rehearsal and performance in a departmental production. All students will be cast in project plays for public presentation. **CSU/UC**

**Theatre Arts 122
Beginning Production Showcase**

Unit(s): 3.0

Class Hours: 32 Lecture total, 48 Laboratory total.

Prerequisite: Audition.

A study of the performer's process in the development of a character in a live stage performance. Rehearsal and performance hours arranged. Additional hours are required for technical rehearsals, dress rehearsals and performances. **CSU/UC**



Theatre Arts 180A

Rehearsal and Performance: Drama - Minor/Supporting Role

Unit(s): 2.0

Class Hours: 16 Lecture total, 48 Laboratory total.

Prerequisite: Audition.

Recommended Preparation: Theatre Arts 110.

This course provides experience in the preparation and public performance of a minor or supporting role in a dramatic theatrical production. Students will discover the complexities of working as an ensemble member, while learning to craft a role that is believable and dimensional. A combination of Theatre Arts 180A, 180B, 181A, 181B, 182A, 182B, 183A and 183B may be taken a maximum of 4 enrollments. **CSU**

Theatre Arts 180B

Rehearsal and Performance: Drama - Leading Role

Unit(s): 2.0

Class Hours: 16 Lecture total, 48 Laboratory total.

Prerequisite: Audition.

Recommended Preparation: Theatre Arts 110.

This course provides intensive experience in the preparation and public performance of a leading role in a dramatic theatrical production. Students will develop their acting techniques and personal process, while learning to negotiate the demanding responsibilities necessary to sustain them through rehearsal and production alike. A combination of Theatre Arts 180A, 180B, 181A, 181B, 182A, 182B, 183A and 183B may be taken a maximum of 4 enrollments. **CSU**

Theatre Arts 181A

Rehearsal and Performance: Comedy - Minor/Supporting Role

Unit(s): 2.0

Class Hours: 16 Lecture total, 48 Laboratory total.

Prerequisite: Audition.

Recommended Preparation: Theatre Arts 110.

This course provides experience in the preparation and public performance of a minor or supporting role in a comedic theatrical production. Students will learn the requisites of comedic performance and learn how to craft a role that is both dimensional and engaging. A combination of Theatre Arts 180A, 180B, 181A, 181B, 182A, 182B, 183A and 183B may be taken a maximum of 4 enrollments. **CSU**

Theatre Arts 181B

Rehearsal and Performance: Comedy - Leading Role

Unit(s): 2.0

Class Hours: 16 Lecture total, 48 Laboratory total.

Prerequisite: Audition.

Recommended Preparation: Theatre Arts 110.

This course provides intensive experience in the preparation and public performance of a leading role in a comedic theatrical production. Students will learn the skills and timing needed to play in diverse comedic genres while developing personal process through acquired comedic techniques. A combination of Theatre Arts 180A, 180B, 181A, 181B, 182A, 182B, 183A and 183B may be taken a maximum of 4 enrollments. **CSU**

Theatre Arts 182A

Rehearsal and Performance: One-Act Plays

Unit(s): 2.0

Class Hours: 16 Lecture total, 48 Laboratory total.

Prerequisite: Audition.

Recommended Preparation: Theatre Arts 110.

This course provides experience in the preparation and public performance of one or more roles in a series of One-Act plays. Students will learn the techniques of creating and performing multiple characters and will further develop their personal performance techniques in plays of diverse styles. A combination of Theatre Arts 180A, 180B, 181A, 181B, 182A, 182B, 183A and 183B may be taken a maximum of 4 enrollments. **CSU (C-ID)**

Theatre Arts 182B

Rehearsal and Performance: Original One-Act Plays

Unit(s): 2.0

Class Hours: 16 Lecture total, 48 Laboratory total.

Prerequisite: Audition/Interview.

Recommended Preparation: Theatre Arts 110.

This course provides experience in acting, writing and/or directing in one or more original One-Act plays. Students will learn the collaborative process of developing and executing scripts, characters, concepts, and production needs of the short play format, culminating in public performance. A combination of Theatre Arts 180A, 180B, 181A, 181B, 182A, 182B, 183A and 183B may be taken a maximum of 4 enrollments. **CSU (C-ID)**

Theatre Arts 183A

Rehearsal and Performance: Musical - Minor/Supporting Role

Unit(s): 2.0

Class Hours: 16 Lecture total, 48 Laboratory total.

Prerequisite: Audition.

Recommended Preparation: Theatre Arts 110.

This course provides experience in the preparation and public performance of a minor or supporting role in a Musical Theatre production. Students will learn to develop the basic acting, dance, and vocal performance skills required for Musical Theatre, while crafting a believable character when working as an ensemble member. A combination of Theatre Arts 180A, 180B, 181A, 181B, 182A, 182B, 183A and 183B may be taken a maximum of 4 enrollments. **CSU (C-ID)**

Theatre Arts 183B

Rehearsal and Performance: Musical - Leading Role

Unit(s): 2.0

Class Hours: 16 Lecture total, 48 Laboratory total.

Prerequisite: Audition.

Recommended Preparation: Theatre Arts 110.

This course provides intensive experience in the preparation and public performance of a leading role in a musical theatre production. Students will continue to develop their vocal, dance, and acting skills, techniques, and personal process, while learning to negotiate the demanding responsibilities of musical theatre performance. A combination of Theatre Arts 180A, 180B, 181A, 181B, 182A, 182B, 183A and 183B may be taken a maximum of 4 enrollments. **CSU (C-ID)**

Theatre Arts 186A

Beginning Technical Theatre Production

Unit(s): 2.0

Class Hours: 16 Lecture total, 48 Laboratory total.

Prerequisite: Interview.

Recommended Preparation: Theatre Arts 110.

This course is intended for students interested in hands-on training and experience in the various backstage areas of technical support for a major Theatre Arts production. Students will be part of the technical team, working with the director, stage manager, designers, and crew heads, while serving as a production crew member. A combination of Theatre Arts 186A, 186B and 186C may be taken a maximum of 4 enrollments. **CSU**

Theatre Arts 186B

Intermediate Technical Theatre Production

Unit(s): 2.0

Class Hours: 16 Lecture total, 48 Laboratory total.

Prerequisite: Interview.

Recommended Preparation: Theatre Arts 110.

Students will gain technical theatre experience working as a crew head in one of the following production areas: Stage management, directional associate, scenery, properties, costuming, makeup, lighting, and/or sound. A combination of Theatre Arts 186A, 186B and 186C may be taken a maximum of 4 enrollments. **CSU**



Theatre Arts 186C
Advanced Technical Theatre Production

Unit(s): 2.0

Class Hours: 16 Lecture total, 48 Laboratory total.

Prerequisite: Interview.

Recommended Preparation: Theatre Arts 110.

This course explores the artistic and organizational techniques and practices required of a stage manager, assistant director, production manager, and designer/coordinators. Students will be involved as members of a Santiago Canyon College Theatre Arts artistic production team working on a major production. A combination of Theatre Arts 186A, 186B and 186C may be taken a maximum of 4 enrollments. **CSU**

WATER UTILITY SCIENCE (WATR)

Division of Business and Career Technical Education

Dean: Von Lawson

Facilitator: Stephen McLean

The Associate of Science degree and Certificate of Achievement in Water Utility Science cover basic concepts in the operation of water treatment plants, controlling and monitoring water deliveries, water quality control methods, water and wastewater pumping equipment electrical systems repair, in addition to pump repair and maintenance procedures. The program is designed to train new personnel and to enable those already working in the field to upgrade their skills. Typically, the new employee starts as an entry level worker, then advances to other higher levels including lead operator, Operations and Maintenance Supervision, Superintendent and/or Manager.

Associate of Science Water Distribution (11907)

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Evaluate drinking water distribution systems and practices with respect to their capabilities to achieve compliance with California public health standards.

Major requirements*	Units
Water Utility Science 050, Water Mathematics and Hydraulics	3
Water Utility Science 052, Water Conservation Practitioner	3
OR	
Water Utility Science 053, Water Reclamation and Reuse	3
Water Utility Science 061, Water Distribution	3
Water Utility Science 062, Advanced Water Distribution	3
Water Utility Science 063, Electrical Wiring and Controls for Operators	3
Water Utility Science 064, Pumps and Pumping	3
Water Utility Science 107, California Water Resources	3
TOTAL	21

Certificate of Achievement Water Distribution (19625)

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Evaluate drinking water distribution systems and practices with respect to their capabilities to achieve compliance with California public health standards.

Certificate requirements	Units
Water Utility Science 050, Water Mathematics and Hydraulics	3
Water Utility Science 052, Water Conservation Practitioner	3
OR	
Water Utility Science 053, Water Reclamation and Reuse	3
Water Utility Science 061, Water Distribution	3
Water Utility Science 062, Advanced Water Distribution	3
Water Utility Science 063, Electrical Wiring and Controls for Operators	3
Water Utility Science 064, Pumps and Pumping	3
Water Utility Science 107, California Water Resources	3
TOTAL	21

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



**Associate of Science
Water Treatment (19623)**

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Analyze conventional and advanced water treatment technologies for their capability to provide drinking water that meets public health and safety standards established by the State of California.

Major requirements*	Units
Water Utility Science 050, Water Mathematics and Hydraulics	3
Water Utility Science 052, Water Conservation Practitioner OR	3
Water Utility Science 053, Water Reclamation and Reuse	
Water Utility Science 061, Water Distribution	3
Water Utility Science 071, Water Treatment Fundamentals	3
Water Utility Science 072, Advanced Water Treatment	3
Water Utility Science 073, Water Quality	3
Water Utility Science 107, California Water Resources	3
TOTAL	21

**Certificate of Achievement
Water Treatment (19624)**

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Analyze conventional and advanced water treatment technologies for their capability to provide drinking water that meets public health and safety standards established by the State of California.

Certificate requirements	Units
Water Utility Science 050, Water Mathematics and Hydraulics	3
Water Utility Science 052, Water Conservation Practitioner OR	3
Water Utility Science 053, Water Reclamation and Reuse	
Water Utility Science 061, Water Distribution	3
Water Utility Science 071, Water Treatment Fundamentals	3
Water Utility Science 072, Advanced Water Treatment	3
Water Utility Science 073, Water Quality	3
Water Utility Science 107, California Water Resources	3
TOTAL	21

**Associate of Science
Wastewater/Environmental Sanitation (11908)**

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Evaluate wastewater treatment processes with respect to their capabilities to achieve compliance with California public health and environmental standards.

Major requirements*	Units
Water Utility Science 050, Water Mathematics and Hydraulics	3
Water Utility Science 053, Water Reclamation and Reuse	3
Water Utility Science 064, Pumps and Pumping	3
Water Utility Science 081, Wastewater Treatment	3
Water Utility Science 082, Advanced Wastewater Treatment	3
Water Utility Science 083, Collection Systems	3
TOTAL	18

**Certificate of Achievement
Wastewater/Environmental Sanitation (21669)**

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Evaluate wastewater treatment processes with respect to their capabilities to achieve compliance with California public health and environmental standards.

Certificate requirements	Units
Water Utility Science 050, Water Mathematics and Hydraulics	3
Water Utility Science 053, Water Reclamation and Reuse	3
Water Utility Science 064, Pumps and Pumping	3
Water Utility Science 081, Wastewater Treatment	3
Water Utility Science 082, Advanced Wastewater Treatment	3
Water Utility Science 083, Collection Systems	3
TOTAL	18

Courses

**Water Utility Science 050
Water Mathematics and Hydraulics**

Unit(s): 3.0

Class Hours: 48 Lecture total.

Recommended Preparation: Mathematics N06 or equivalent skills as measured by the Mathematics Level 1 Exam.

Practical application of mathematics to perform unit conversions and to calculate areas, volumes, flow rates, pressures, velocities, chemical dosages and related hydraulic calculations used in water system operations.

**Water Utility Science 052
Water Conservation Practitioner
(Formerly: Water Utility Science 131, Water Conservation Practitioner)**

Unit(s): 3.0

Class Hours: 48 Lecture total.

Theoretical and practical training in applied water use efficiency. Includes residential, commercial, and landscape customers, water uses, budgets, demand management, water audits, best management practices, rate structures, program design and management. Preparation for American Water Works Association (AWWA) Grade 1 and 2 Water Conservation Practitioner certification. Optional field trips may be offered.

**Water Utility Science 053
Water Reclamation and Reuse
(Formerly: Water Utility Science 204, Water Reclamation and Reuse)**

Unit(s): 3.0

Class Hours: 48 Lecture total.

Fundamentals of reclaimed water, includes case studies and history of reclaimed water development. Planning, design and construction of reclaimed distribution systems. Problems regarding marketing, legislation and regulations for reclaimed water. Includes microbiology and health/safety issues. Optional field trips may be offered.

**Water Utility Science 056
Treatment Test Preparation**

Unit(s): 0.2

Class Hours: 8 Laboratory total.

Review information provided in various water treatment classes in the program and prepare students to take and successfully pass the California Department of Health Services Operator T1 and T2 examinations. Grade: Pass/No Pass.

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.



Water Utility Science 057
Water Distribution Test Preparation

Unit(s): 0.2

Class Hours: 8 Laboratory total.

Review information provided in various water distribution classes in the program and prepare students to take and successfully pass the California Department of Health Services Operator D1 and D2 examinations. Grade: Pass/No Pass.

Water Utility Science 061
Water Distribution
(Formerly: Water Utility Science 109, Water Distribution Systems)

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: Water Utility Science 050.

Presents basic concepts of drinking water distribution, including water sources, water quality, and distribution system components. Water mathematics topics addressed include volume, flow rate, velocity, and chemical feeding calculations. Assists in the preparation for the California State Water Resources Control Board level D1 and D2 Water Distribution Operator certification exams. Optional field trips may be offered.

Water Utility Science 062
Advanced Water Distribution
(Formerly: Water Utility Science 210, Advanced Water Distribution)

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: Water Utility Science 061.

Presents advanced concepts of drinking water distribution, including water quality regulations, distribution system components, maps and records, and supervisory and management topics. Advanced water mathematics topics addressed include applied system and pump hydraulics. Assists in the preparation for the California State Water Resources Control Board level D2, D3, and D4 Water Distribution Operator certification exams. Optional field trips may be offered.

Water Utility Science 063
Electrical Wiring and Controls for Operators
(Formerly: Water Utility Science 104, Electrical Wiring and Controls for Operators)

Unit(s): 3.0

Class Hours: 48 Lecture total.

Theoretical and practical skills needed to perform preventive maintenance and minor repair of basic electrical wiring and control systems used in water and wastewater facilities. Optional field trips may be offered. *CSU*

Water Utility Science 064
Pumps and Pumping
(Formerly: Water Utility Science 208, Pumps and Pumping)

Unit(s): 3.0

Class Hours: 48 Lecture total.

Basic pump theory, operation, and repair. Assists operators and technicians in the design, selection, installation and maintenance of various dynamic and positive displacement pumps. Topics include pumps and pump components, hydraulics, and pumping system efficiencies. Optional field trips may be offered.

Water Utility Science 071
Water Treatment Fundamentals
(Formerly: Water Utility Science 101, Water Treatment Fundamentals)

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: Water Utility Science 050.

Presents the basic operating principles and techniques of the conventional surface water treatment process of coagulation, flocculation, sedimentation, and filtration, plus those of common disinfection processes. Assists in preparation for Grade T1 and T2 Water Treatment Operator certification examination given by the California State Water Resources Control Board, Division of Drinking Water Programs. Optional field trips may be offered.

Water Utility Science 072
Advanced Water Treatment
(Formerly: Water Utility Science 102, Advanced Water Treatment)

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: Water Utility Science 071.

Examines advanced topics in conventional drinking water treatment processes and disinfection, as well as non-conventional treatment processes. Assists in preparation for Grade T2 and T3 Water Treatment Operator certification examination given by the California State Water Resources Control Board, Division of Drinking Water Programs. Optional field trips may be offered.

Water Utility Science 073
Water Quality
(Formerly: Water Utility Science 103, Water Chemistry and Bacteriology)

Unit(s): 3.0

Class Hours: 48 Lecture total.

Recommended Preparation: Water Utility Science 050.

Examines basic principles of chemistry and microbiology, and applies them to drinking water quality and related state and federal regulations. Optional field trips may be offered.

Water Utility Science 081
Wastewater Treatment
(Formerly: Water Utility Science 111, Wastewater Treatment Basic Operations)

Unit(s): 3.0

Class Hours: 48 Lecture total.

Prerequisite: Water Utility Science 050.

Presents the basic operating principles and techniques of conventional wastewater treatment, including preliminary, primary, and secondary treatment processes, as well as wastewater quality assessment, wastewater collection, and wastewater disposal. Successful completion provides student with 48 Certification for Wastewater Professionals (CWEA) contact hours and 8 State Water Resources Control Board (SWRCB) educational points. Prepares student for SWRCB Wastewater Treatment Plant Operator exam-Grades 1 and 2. Optional field trips may be offered.



**Water Utility Science 082
Advanced Wastewater Treatment
(Formerly: Water Utility Science 112, Wastewater Treatment
Advanced Operations)**

Unit(s): 3.0
Class Hours: 48 Lecture total.
Prerequisite: Water Utility Science 081.

Presents advanced operating principles and techniques of conventional wastewater treatment. Also presents operating principles and techniques of advanced processes including activated sludge, disinfection, tertiary treatment and sludge handling. Successful completion provides student with 48 Certification for Wastewater Professionals (CWEA) contact hours and 8 State Water Resources Control Board (SWRCB) educational points. Prepares student for SWRCB Wastewater Treatment Plant Operator exam-Grades 1 and 2. Optional field trips may be offered.

**Water Utility Science 083
Collection Systems
(Formerly: Water Utility Science 116, Collection Systems)**

Unit(s): 3.0
Class Hours: 48 Lecture total.

Sewer construction, inspection and testing, cleaning methods, safety, elementary hydraulics, pipeline repair, equipment maintenance, communications, and record keeping. Successful completion provides student with 48 CWEA contact hours and 4 SWRCB educational points. Preparation for CWEA Wastewater Collection System exam all Grades. Optional field trips may be offered.

**Water Utility Science 091
Cross Connection Control Specialist
(Formerly: Water Utility Science 108, Cross Connection
Control Specialist)**

Unit(s): 3.0
Class Hours: 48 Lecture total.

Introduction and methodology of establishing a cross connection control program. Includes local, state and federal regulations. Prepares students for American Water Works Association Cross Connection Control Specialist examination.

**Water Utility Science 107
California Water Resources**

Unit(s): 3.0
Class Hours: 48 Lecture total.

Introduction to water law and rights, California water history, political lore, and water supply agencies serving Orange County. Includes hydrologic cycle, sea water intrusion, protection of wells and reservoirs, flood control, pollution/contamination of ground water supplies, and the conservation of water. Also focuses upon California water supply show stoppers and affects. **CSU**

**Water Utility Science 199
Cooperative Work Experience Education**

Unit(s): 1.0-4.0
Class Hours: 60-300 Laboratory total.
Prerequisite: Successful completion of 6 units in Water Utility Science.

This course is designed for students majoring in the Water Utility Science. Students must be enrolled in a minimum of six Water Utility Science units. Job site experience will train the student in additional job skills that will enhance academic learning from the classroom to the workplace. May be either paid or unpaid. May be repeated. Grade: Pass/No Pass. Open Entry/Open Exit. **CSU**

WOMEN'S STUDIES (WMNS)

Division of Arts, Humanities and Social Sciences

Dean: Marilyn Flores
Department Chair, Women's Studies: Tiffany Gause

**Associate of Arts
Women's Studies (11938)**

The Associate of Arts degree in Women's Studies is a liberal arts major which is designed to meet the following needs: 1) to help women develop a perspective pertaining to their own self-interest and relate those views to social and cultural factors such as economic necessity, political participation, historical patterns, and ethics; 2) to develop their self-awareness in relation to others; 3) to develop skills of communication and analysis; 4) to prepare for transfer to four-year colleges and schools of professional training; 5) to enrich women's knowledge of their culture and the rapid developments that are taking place within it.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Understand and explain the historical and cultural factors in the development and persistence of sex/gender inequality.
- Explain major concepts, ideas, and issues relevant to the study of women and project their significance into the real world.
- Connect the thinking and research of multiple disciplines on various issues and problems relevant to women.

Major requirements*	Units
Women's Studies 101, Introduction to Women's Studies	3
Women's Studies 102, Women in America: Work, Family, Self	3
English 278, Survey of Literature by Women	3
History 127, Women in U.S. History	3
Interdisciplinary Studies 155, Human Sexuality	3
Kinesiology 110, Women's Health Issues	3
Select six (6) to seven (7) units from the following:	6-7
Communication 225/225H, Gender Communication (3)	
Counseling 116, Career/Life Planning and Personal Exploration (3)	
Library and Information Studies 103, Advanced Internet Research (1)	
Philosophy 108, Ethics (3)	
Sociology 130, Relationships, Marriages, and Family Dynamics (3)	
TOTAL	24-25

Courses

**Women's Studies 101
Introduction to Women's Studies**

Unit(s): 3.0
Class Hours: 48 Lecture total.
A multicultural survey of social trends, issues, opportunities, and topics of special interest to women. Discussion includes sex, sex role stereotyping, family problems, work, law, gender equity, physical and mental health, feminism, rape, and women in arts, sciences, history and business. **CSU/UC**

**Women's Studies 102
Women in America: Work, Family, Self**

Unit(s): 3.0
Class Hours: 48 Lecture total.
Examination of women's roles in America. Emphasis on employment, family structures, and personal development. Topics include historical patterns, socialization, opportunities, sexism, identity, growth, law, unionization, sexual harassment, media influence, family pressures, child care, guilt, stress. **CSU/UC**

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.